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INTEGRATED SAFETY MANAGEMENT SYSTEM DESCRIPTION



**U.S. DEPARTMENT OF ENERGY
OFFICE OF RIVER PROTECTION**

Executive Summary

The ISM System Description defines how the Office of River Protection integrates environment, safety, and health (ES&H) requirements and controls into all work activities. It explains our safety values, objectives and approach for assuring protection to the worker, public and the environment. This revised document incorporates the four supplemental guiding principles into the existing seven guiding principles. Lastly, this document establishes the Manager of the Office of River Protection expectations regarding establishing and maintaining a safety conscience work environment. The following are the Manager of the Office of River Protection Manager safety expectations for all Federal staff.

Safety is first – it overrides every other priority

Safety is the dominating characteristic and value of the Office of River Protection (ORP). Safety comes first and is valued above production, budget and schedule. Safety is first - it overrides every other priority.

Safety motivates and drives how we do business. The ORP ISM is a systematic approach for selecting and incorporating the appropriate safety standards, necessary work controls, and expectation of continuous feedback/improvement. ORP staff will not accept shortcuts that circumvent safety or yield less than quality results. This systematic approach motivates a culture of personal responsibility by and for each employee.

The ORP safety culture is founded on the following principles:

- An environment where each employee instinctively feels responsible for safety.
- Leaders demonstrate commitment to safety.
- Trust towards each other is a signature of the organization.
- Decision-making reflects safety as the overriding priority.
- An inquisitive attitude and behavior towards challenging assumptions and considering potential adverse consequences of planned actions.
- A disciplined authorization basis (documented safety analysis) system is essential to ensuring all hazards are identified and mitigated before work begins.
- Organizational learning is embraced.
- We openly examine our operations and invite input from external resources.

ORP offers a work environment which fosters and encourages an open exchange of ideas. This includes raising safety concerns without fear of reprisal or retaliation. Each ORP staff member is expected to raise safety issues and provide feedback for improving work processes.

Each ORP worker is expected to protect against accidents. All accidents and incidents are preventable. An accident free workplace is achieved through thorough planning, close attention to hazard controls, worker involvement in task planning and a workforce that complies with procedures and does proceed in the face of uncertainty. ORP staff will maintain a high standard of excellence and expectation for the organization and for operation of nuclear facilities. The Office of River Protection will be a model safety-conscious work environment.

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Acronyms

ABAR	Authorization Basis Amendment Request
BNI	Bechtel National, Inc.
CH2M HILL	CH2M HILL Hanford Group, Inc.
ConOps	Conduct of Operations
DEAR	U.S. Department of Energy Acquisition Regulation
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
EMS	Environmental Management System
ESQ	Office of Environmental Safety and Quality
FEOSH	Federal Employee Occupational Safety and Health
FAE	Facility Area Engineer
FRA	Functions, Responsibilities, and Authorities
FRAM	Safety Management Functions, Responsibilities, and Authorities Manual
ES&H	Environment, Safety, and Health
FSAR	Final Safety Analysis Report
HFFACO	Hanford Federal Facility Agreement and Consent Order
HQ	Headquarters
IPP	Individual Performance Plan
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
OCRWM	Office of Civilian Radioactive Waste Management
ORP	U.S. Department of Energy Office of River Protection
ORPS	Occurrence Reporting and Processing System
PMB	Performance Measurement Baseline
PSAR	Preliminary Safety Analysis Report
QAP	Quality Assurance Program
RL	U.S. Department of Energy Richland Operations Office
RPP	River Protection Project
SAR	Safety Analysis Report
SER	Safety Evaluation Report
SME	Subject Matter Expert
SSO	Site Safety Officer
S/RID	Standards/Requirements Identification Document
TFC	Tank Farm Contractor
TQP	Technical Qualification Program
TSR	Technical Safety Requirements
USQ	Unreviewed Safety Question
WTP	Waste Treatment and Immobilization Plant

1.0 Purpose and Objective

The purpose of the Office of River Protection (ORP) Integrated Safety Management System (ISMS) Description is to describe how the Office of River Protection integrates environment, safety, and health (ES&H) requirements and controls into all work activities. It explains our safety values, objectives and approaches for assuring protection to the worker, public and the environment. This revised document incorporates the four supplemental guiding principles into the existing seven guiding principles. Lastly, this document establishes the Manager of the Office of River Protection expectations regarding establishing and maintaining a safety conscience work environment.

The ORP Integrated Safety Management System (ISMS) Description correlates the ORP management systems and processes to each of the ISMS Guiding Principles, Core Functions and Principles for a Strong Nuclear Safety Culture. By providing this correlation, ORP employees will better understand their role in integrating safety into the workplace and the implementation of ISMS at ORP. The result is an organization with a strong nuclear safety culture and a safe work place.

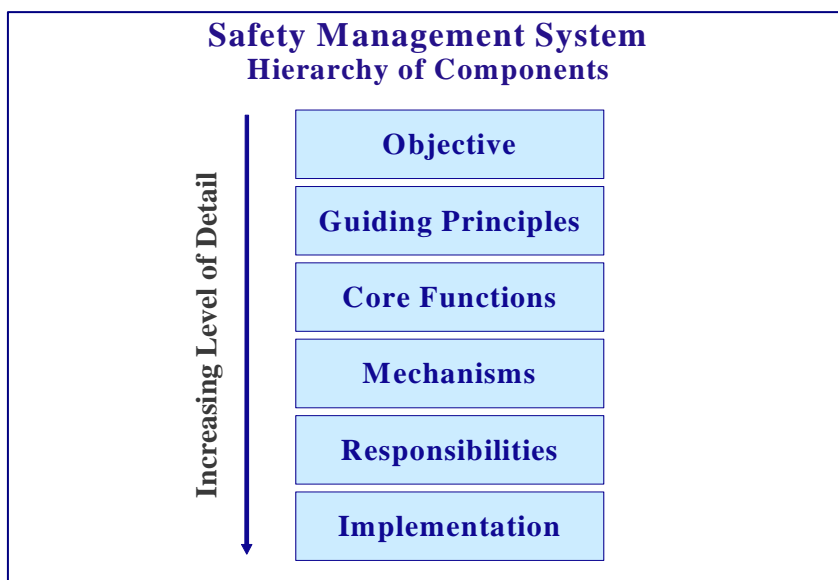
2.0 ISMS Overview

Integrated Safety Management involves the integration of safety awareness and practices into all aspects of work performance. An ISMS provides a formal process where people plan, perform, assess and improve the safe conduct of work. Safety is integral to the planning and accomplishment of each job. ORP will conduct work in a manner that protects the worker, the public and the environment.

The DOE safety management system establishes a hierarchy of six of components to facilitate consistent implementation throughout the DOE complex (Figure 1).

Figure 1. ISMS Hierarchy of Components.

DOE consistently uses the same objective, guiding principles and core functions throughout the complex to implement ISMS. The mechanisms, responsibilities, and implementing components vary from site-to-site based on the nature and the hazard of work to be performed.



Safety Management Objective: Systematically integrate safety into management and work practices at all levels of the ORP.

11 Guiding Principles (7 Original Plus 4 Supplemental) for Safety Management: These principles establish the fundamental policies which guide DOE and contractor actions for safe work accomplishment. Section 7 discusses the ORP implementation of each of the following principles:

- Line Management Responsibility for Safety.
- Clear Roles and Responsibilities.
- Competence Commensurate with Responsibilities.
- Balance Priorities.
- Identification of Safety Standards and Requirements.
- Hazard Controls Tailored to Work Being Performed.
- Operations Authorization.
- Highly-Reliable Operational Performance.
- Individual Attitude and Responsibility.
- Performance Assurance.
- Organizational Performance Improvement.

Figure 2. ISM Principles and Functions

**5 Core Functions for
Safety Management:**

- Define the Scope of Work.
- Analyze the Hazards.
- Develop and Implement Hazards Controls.
- Perform Work within Controls.
- Provide Feedback and Continuous Improvement.

Guiding Principles and Core Functions



Mechanisms for Safety Management: Safety Mechanisms define how the core safety management functions are implemented and performed.

Responsibilities for Safety Management: The ORP responsibilities for safety management are clearly defined in the ORP FRAM (Revision 5), Section 6.0 of this document, contracts and the contractor ISM Descriptions.

Implementation of Safety Management: Specific safety implementation actions, systems and attributes are defined in Section 7.0.

3.0 ORP Management Commitment

ORP management will provide its workers with a safe and healthful workplace. Furthermore, the ORP management team will establish management systems which foster a safety conscience work environment. The ORP management team will strive to eliminate all workplace hazards. Where the hazard cannot be totally eliminated, control strategies will be implemented to mitigate the hazard. The ORP management team is committed to a “Zero Accident Policy.” We will eliminate accidents by adhering to the highest standards of safety and protection for our workers, the public, and the environment. ORP management pledges the following to its workforce:

**ORP is a place
where the
prevention of
accidents is
instinctive to
employees**

- Senior managers will “lead by example” to achieve a safety conscious work environment and an accident free workplace.
- Work is planned, hazards are identified, and actions are taken to mitigate hazards before work begins. ISM principles and functions drive work planning and execution.
- Workers can raise concerns and issues without fear of retaliation from management or peers. Added safeguards to encourage freedom of opinion include the Employee Concerns Program and the Differing Professional Opinion process.
- ORP is self-critical and invites external evaluations to achieve continual improvement.
- ORP defines clear roles, responsibilities and authorities for each worker.
- We continuously train our workers to ensure demonstrated technical capabilities are in place to fulfill safety responsibilities at all levels of the organization.
- ORP maintains a viable lessons-learned and operating experience program (Assessment and QA Program) so that we continually “learn from experience.”
- OPR will not incur any low-probability, high-consequence events at nuclear facilities.

- ORP monitors actual performance against annual safety performance objectives and shares the results with its workers.
- ORP assesses contractors to determine the effectiveness of work planning and work control processes. Corrective actions are incorporated swiftly.
- ORP selects contractors who are committed to and demonstrate a zero accident safety culture.
- Environmental management considerations (understanding the impact of an action to the environment) are an integral part of the ORP planning and decision-making process.

4.0 Safety Expectations

Good leadership and a culture of trust are the key ingredients for project success. ORP's culture represents the sum total of the group's learning as it deals with challenges, issues, and new information. A strong safety culture sets the stage for a healthy organization. This principle can be viewed as follows:

- Organizational culture – The sum total of the group's learning and knowledge for the project.
- Nuclear safety culture – ORP's behaviors and values making safety its overriding priority.
- Worker safety culture – A safety conscious work environment where workers raise issues and concerns without fear of reprisal.

Safety, production, and cost control are the goals and expectations for the construction and operation of ORP's facilities. These outcomes are complementary and are reinforced by decisions made with a long-term view. The following expectations establish the framework for safety as the overriding priority:

- Safety is a collective responsibility. No one in the organization is exempt from the obligation to ensure safety first. Each worker takes personal responsibility for improving work processes and ensuring quality on each task.
- Managers and supervisors demonstrate a commitment to safety first.
- Trust is fostered through timely and accurate information, treating people with respect, encouraging workers to raise concerns and differing opinions, and encouraging employees to express ideas.
- Decision-making reflects safety before production, cost, schedule, and innovation.
- Willingness to pause and ask questions, gather answers and additional data, rather than proceed in the face of uncertainty.

- Each worker maintains a questioning and inquisitive attitude.
- Organizational learning is fostered through training, self-assessments, corrective action and benchmarking.
- Oversight is used to strengthen safety and improve performance. Safety is kept under constant scrutiny through a variety of monitoring techniques.
- ORP strives to achieve excellence beyond compliance.
- Personnel take an active role in assuring effective implementation of ISM principles.
- ORP and contractors annually update and improve ISM systems.

5.0 Safety Performance Measures

ORP gauges safety progress by monitoring performance against aggressive safety objectives and goals. Actual safety performance results are evaluated against baseline objectives to determine the success of our safety culture. Since ORP has management systems to execute the ISM principles, indicators are developed to measure the effectiveness of the system. Some of the indicators used by ORP to measure progress for itself are:

• Safety conscious work environment training attendance.
• Ensuring the appropriate types of oversight assessments are performed on our contractors/programs and completion rate of assessments against the schedule.
• Tracking the number of hours managers observe operations in the field.
• Completing accreditation of the Technical Qualification Program (TQP) against INPO standards.
• Review of monthly project cost and schedule indices.
• Incorporation of safety responsibility and goals into Individual Position Descriptions (IDPs), Development Plans (PDs), and Employee Job Task Analysis (EJTAs) documents, and completing an annual update of these documents on schedule.
• Senior management completion of the DOE Nuclear Executive Leadership Training course before year-end.
• Timely disposition of employee concerns and differing professional opinions.
• Timely disposition of baseline change requests.
• Timely work scope priority guidance to contractors.
• Completion of annual employee performance plans with meaningful safety goals.
• Completion of annual ISM readiness reviews on schedule.
• Closure of ISM corrective actions within 30 days from identification.

A complete list of ORP performance measures and goals are provided in Appendix B.

The contractor develops safety measures for operations, construction and field work. Performance measures are prepared annually and submitted to ORP for review and acceptance. The contractor tracks performance continuously against the measures and submits monthly evaluation reports to ORP for review.

The types of indicators tracked by the contractors include:

• Total Recordable Lost Work Days Case Rate.
• Days Away and Restricted Workdays.
• Reportable Occurrences of Releases to the Environment.
• Worker Radiation Dose.
• Skin and clothing contaminations cases.
• Lockout/tagout incidents.
• Reduction of contaminated areas.
• Regulatory Notices of Correction and Violations.
• Double-Shell Tank Space Capacity.
• Technical Safety Requirement Violations.

Indices are established for each topical area based on historical performance and future improvement expectations. Process is monitored by ORP to evaluate key issue areas and trends.

6.0 Roles and Responsibilities

ORP is responsible for managing all aspects of the River Protection Project (RPP) safely and with excellence. The ultimate responsibility and accountability for ensuring adequate protection in the work environment rests with DOE ORP line management. ORP's assignment of safety responsibilities are clearly defined in the Safety Management Functions, Responsibilities, and Authorities Manual (FRAM), ORP M 411.1, Revision 5. The FRAM can be viewed at: <http://apweb04.rl.gov/doeorp/orp/index.cfm?PageNum=6>

The FRAM details essential safety management functions and establishes clear DOE lead roles, responsibilities, and authorities for execution of authorized work. The ORP organization safety responsibilities are summarized as follows (Figure 3):

- Line managers are responsible for ensuring safety in work performance and implementing the core safety functions.
- The ESQ Director is the ORP safety officer and is responsible for: interpreting safety rules; developing safety directives; and, overseeing ORP compliance to safety requirements.
- Independent oversight is performed by DOE organizations which do not have line management responsibility for the activities being reviewed.
- All ORP workers are responsible for ensuring work is executed safely on each task and communicating safety concerns to management.

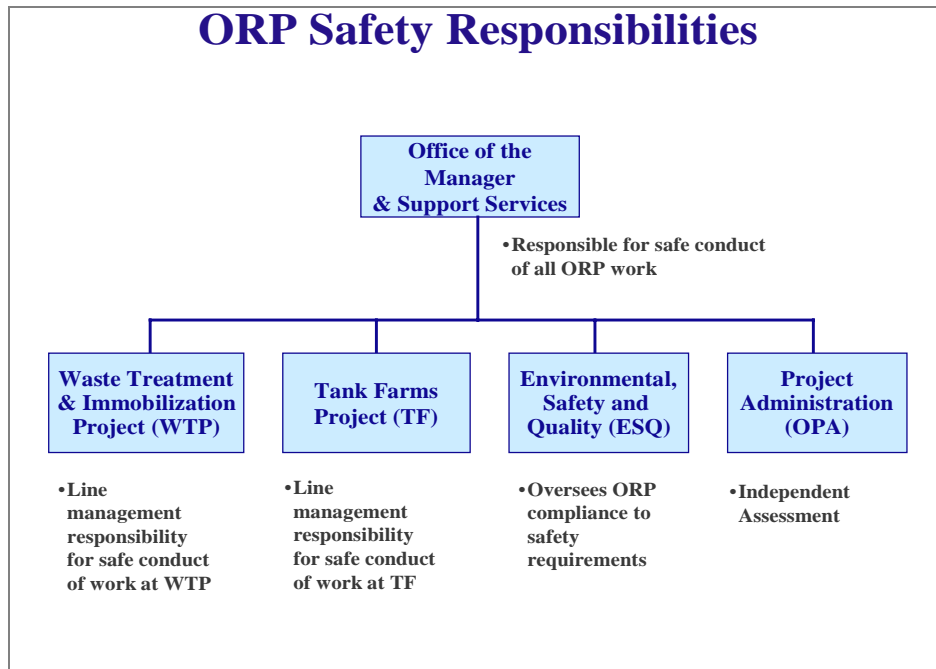


Figure 3. ORP Safety Responsibilities.

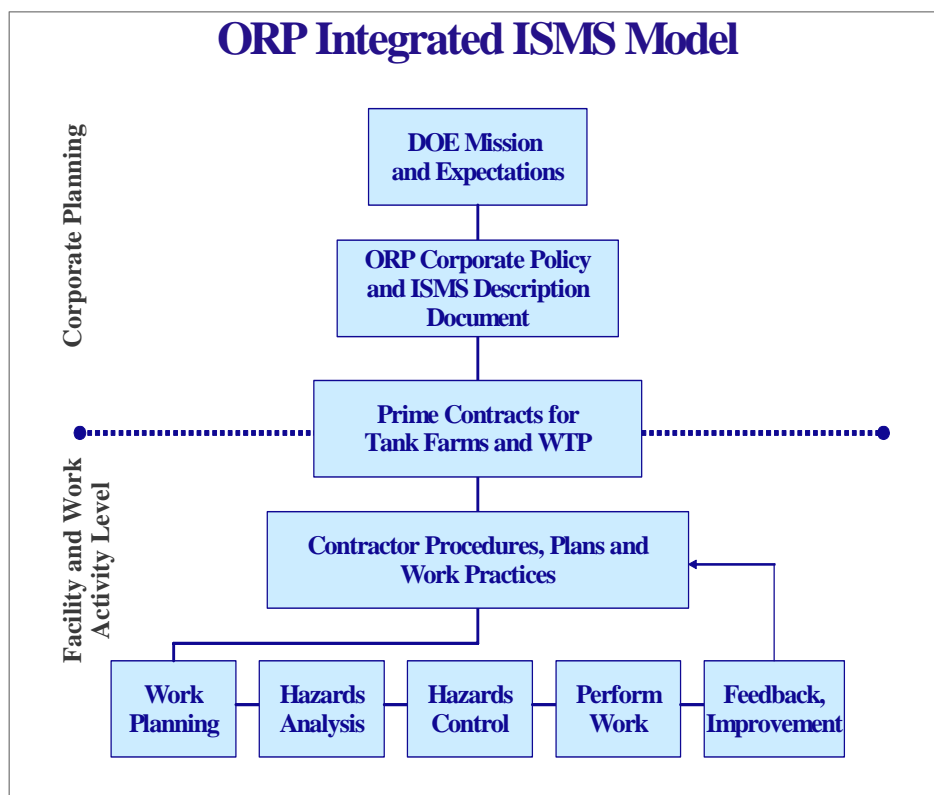
Where contractors are employed to plan and conduct work at ORP facilities, ORP line management fulfills their safety responsibility by establishing contractual requirements, safety guidance, and safety policy for the contractor. All DOE managers are responsible for overseeing contractor work and assessing safety compliance against ISM requirements.

ORP management sets the example of safety leadership through visible actions such as monthly safety meetings, personal visits to facilities, and routine walkthroughs in work areas. Managers are expected to be routinely visible in the field to reinforce safe conduct of operations and discuss safety concerns directly with the workers.

7.0 Implementation of ISM at ORP

The ORP safety management system ensures DOE and its contractors systematically integrate safety into work activities at all levels. ORP implements the requirements of ISMS through a comprehensive set of policies, project planning, regulations and contracts. The safety requirements of DOE Policy 450.4, Safety Management System Policy, and DOE Guide 450.4-1B, ISMS Guide, are consistently applied within each prime contract (Figure 4).

Figure 4. ORP Integrated ISMS Model.



7.1 Approach for Executing ISM Safety Principles

The attributes of the ISM principles (7 plus 4 supplemental high-reliability) and five core functions is improved safety awareness and operation. The principles establish an expected set of behaviors and disciplines for eliminating unsafe practices and accidents. Section 7 describes the ORP implementation of the safety principles/functions, and the management systems installed to execute the desired safety, quality and production outcomes. Appendix A provides a supplementary discussion of the 11 principles and 5 core functions.

The following Table 1 (page 9) shows the alignment of the ORP management systems to the ISM safety principles.

ORP Safety Culture	ISMS Guiding Principles	Supplemental High-Reliability Principles	ISM Core Functions	ORP Management Systems to Execute Principles
<ul style="list-style-type: none">• Leaders demonstrate commitment to safety	Line Management Responsibility	Highly-Reliable Operational Performance	* All Core Functions apply to first 3 Principles.	<ul style="list-style-type: none">• Project Management System• Assessment and Oversight Program• Management Walk-Through Program
<ul style="list-style-type: none">• Everyone is responsible for safety• Trust permeates the organization	Clear Roles and Responsibilities	Individual Attitude and Responsibility		<ul style="list-style-type: none">• ORP FRAM• Human Resource Mgmt.• Workforce Management• Employee Relations
<ul style="list-style-type: none">• Organizational learning is embraced• A questioning attitude is cultivated	Competence to Perform Responsibilities			<ul style="list-style-type: none">• Employee Training and Development• Federal Technical Capability Program• Performance and Recognition Program• Minority/Differing Profession. Opinion
<ul style="list-style-type: none">• Decision-making reflects safety first	Balanced Priorities	Performance Assurance		<ul style="list-style-type: none">1. Define Scope of Work2. Identify and Analyze Hazards
<ul style="list-style-type: none">• Nuclear operations are special and unique and required disciplined controls	<ul style="list-style-type: none">• Identification of Safety Standards• Tailor Hazard Controls to Work	Organizational Performance Improvement	3. Develop and Implement Hazard Controls	<ul style="list-style-type: none">• Safety Basis Mgmt. System• Authorization Basis Management• Environmental Mgmt. System• ISMS Annual Declaration process
<ul style="list-style-type: none">• Safety undergoes constant examination	Operations Authorization		<ul style="list-style-type: none">4. Perform Work Within Controls5. Feedback and Continuous Improvement	<ul style="list-style-type: none">• Construction and Ops. Authorizations• Employee Concerns Program• Quality Assurance Program• Safety and Health, Security• Performance Evaluation System• Communications• Lessons Learned

Table 1. Safety Management Systems to Execute ISM Principles.

Supplemental Management Actions to Enhance Safety

In addition to installation of the management systems, ORP has taken supplemental actions and initiative to improve safety awareness and to achieve ownership of the safety culture. Table 2 summarizes some of these key management actions.

ISMS Guiding Principles	4 Supplemental High-Reliability Principles	Summary of Supplemental Management Action/Initiatives For Enhanced Safety
1. Line Management Responsibility	8. Highly-Reliable Operational Performance	<ul style="list-style-type: none"> • INPO safety culture training to DOE managers (in progress). • ORP safety policy and employee concerns brochure distributed to workers (in progress). • Develop a safety culture module for the Hanford General Education Training. • Conduct monthly all-employees meeting with safety focus. • Continue the Appreciative Inquiry initiative to improve organizational trust, communication, contractor oversight and employee ownership of a nuclear safety environment (in progress). • Workforce analysis to identify key positions required in the organization to improve safety.
2. Clear Roles and Responsibilities	9. Individual Attitude and Responsibility	<ul style="list-style-type: none"> • Complete the ORP Management Succession Plan in September 2005. • March 2005 update of the ORP FRAM to reflect new DOE organization. • Complete update of the ORP web page with enhanced safety focus (in progress).
3. Competence to perform Responsibilities		<ul style="list-style-type: none"> • Complete development of ORP Training and Qualifications Management Plan. • February 2005 update of the ORP Quality Assurance Plan. • Distribute and discuss the DOE Electrical Safety Handbook. • Completed customized ORP OSHA 600 and 300 training. • Complete safety conscious work environment training for FTCP, FCOG and ORP staff. • Update the SME, FAE and SSO Qualifications Programs. • Designate ORP representative to support the enhancement of the STSM training program for qualification. • Support to DOE-HQ for accreditation of TQP based on INPO model. • Completed "Hooked on Safety" training for the FTCP and Facility Representatives.
4. Balanced Priorities	10. Performance Assurance	<ul style="list-style-type: none"> • Established of a Corporate Board to review priorities, work plans and budget requests. • ORP change management board goal to disposition change requests in 30 days. • ISMS annual assessments, ISMS validation reviews and safety progress reports to DNFSB. • Addition of certified Industrial Hygienist. Perform annual contractor IH assessments.
5. Identification of Safety Standards		<ul style="list-style-type: none"> • Implementation of environmental management system (EMS) per DOE O 450.1 by 12/05. • Increased ORP safety management oversight assessments and self-assessments.
6. Tailor Hazard Controls to Work		<ul style="list-style-type: none"> • Completed review of the Tank Farm Documented Safety Analysis (DSA). • Disposition WTP ABARs and SERs within two weeks. • Complete bi-annual review of the WTP PSAR and transmit SER by May 2006.
7. Operations Authorization		<ul style="list-style-type: none"> • Completed implementation of the ORP employee concerns program (ECP). DOE ECP coordinators trained to perform worker concern intakes and to investigate safety issues. • Completed and implemented the ORP ISMS Declaration procedure.
	11. Organizational	

Table 2. Supplemental Management Actions to Enhance Safety Culture.

The following sections identify the ORP safety culture attributes, management systems, and supplemental safety actions for each ISM Principle and Core Function. These sections describe how the ORP systems and actions help achieve the qualities of a safety conscious workplace.

7.1.1 Principle 1: Line Management Responsibility for Safety

ORP installs effective management systems to ensure line management is directly responsible for the protection of the public, the workers, and the environment.

Attributes and Expected Outcomes

- Line management understands and accepts their safety responsibilities.
- Leaders demonstrate commitment to safety.
- Line management has a clear understanding of their work activities and objectives.
- Managers practice visible leadership in the field by coaching, mentoring and reinforcing standards.
- Line management is the source of direction on the project. Oversight organizations perform evaluation but do not undermine line authority.
- Managers consider the employee perspective in understanding and analyzing issues.
- Managers perform effective oversight of work.
- Managers are involved in high-quality training which reinforces worker behaviors.
- The bases for decisions are communicated promptly to workers.

ORP Management Systems to Execute Outcomes

- Project Management System which defines management requirements/approach and evaluates performance.
- ORP FRAM Rev. 5 which assigns management responsibility.
- Assessment and Oversight Program.
- Management Walk-Through Program.

Discussion

Assignment of line management responsibility for safety is accomplished via Section 5 of the ORP FRAM (Rev. 5). The ORP FRAM addresses the safety management functions identified in the DOE Headquarters FRAM, EM FRAM, other pertinent responsibilities and authorities delegated to the ORP Manager, and identification of ORP organizational responsibilities for each function. The ORP FRAM assigns applicable safety responsibilities to individual Assistant Managers, Project Managers and Directors. The processes for executing ISMS functions are further described in ORP implementing procedures, manuals, and other activity and program-specific documents. Specific examples of ORP line management's responsibility for safety include approval of authorization basis documents, line authority to stop work, and line management determination of contractor award fee and performance-based incentives.

The ORP line managers are ultimately responsible for safe conduct of operations and work. The ESQ Director oversees ORP compliance to safety requirements and standards, and manages the

assessment program. ORP support service organizations have independent assessment oversight responsibility for areas not directly in their chain of command. Managers are required to perform a minimum of 100 hours of walk-through investigation/review of field operations and facilities.

Supplemental Management Actions to Enhance Safety Culture

- ORP's organizational improvement initiative called Appreciative Inquiry.
- INPO safety culture training to DOE managers (in progress).
- Workforce analysis to identify key positions required in the organization to improve safety.
- ORP safety policy and employee concerns program brochure developed and distributed to workers.
- Development of a safety culture module for the Hanford General Education Training program.
- Monthly all-employee meetings with the Manager discussing safety culture and safety objectives.
- Federal Employee Occupational Safety and Health Program (FEOSH) council for work environment safety consciousness meetings.
- ORP Manager's morning leadership meeting to promote safety goals and discuss performance indicators.
- ORP Change Control Board, composed of senior managers, for reviewing and approving baseline changes with respect to work scope requirements, budget and schedule.
- Required monthly safety meetings for all employees.
- FEOSH office inspections to improve housekeeping, locate/remove unsafe equipment (unstable bookshelves, floor heaters without safety features, etc.), and improve ergonomics for the workers.
- Implementation of the ORP employee concerns program.
- Creation of the Hanford Concerns Council as an independent, alternative avenue for addressing employee concerns.

Discussion

The ORP Manager has taken action to improve the effectiveness of the organization and technical capabilities. ORP has undergone significant change and continues to affect significant development of its organization, management and personnel in service of its primary missions. ORP leadership has streamlined the organization and its support service contractors, placed additional focus on line management performance, and has called for increased levels of accountability from line and business organizations. Additionally, ORP has re-written the contracts of BNI and CH2M HILL to strengthen the definition of deliverables, incentives and work requirements.

As part of this effort, ORP leaders conduct organizational development, management development, coaching, communication and team building activities. The initiative is called "Appreciative Inquiry," and relies heavily on participation and input from the staff. The initiative objectives include:

- Improve focus on overall mission performance by better aligning goals, performance plans and behaviors.

- Instill a culture of accountability, solutions-orientation, bias for action and decision-making.
- Improve individual contributor participation in the decision-making process by having individuals gathering organization feedback through interviews and surveys.

ORP Management System Policy and Procedural Documents

[ORP M 411.1-1, *Safety Management Functions, Responsibilities, and Authorities Manual for the U.S. Department of Energy, Office of River Protection.*](#)
[ORP M 220.1, *Integrated Assessment Plan, Revision 3.*](#)

7.1.2 Principle 2: Clear Roles and Responsibilities

ORP has an effective safety management system and FRAM to ensure clear and unambiguous lines of authority and responsibility for safety are established and maintained at all organizational levels and with our contractors.

Attributes and Expected Outcomes

- The lines of authority and responsibility for safety are defined from the ORP Manager to the individual contributors.
- The support organizations (OPA, Communications, Human Resources, General Counsel) also understand their role for contributing to safety.
- All personnel understand the importance of adhering to nuclear safety standards.
- The system of rewards and sanctions is aligned with nuclear safety policies.
- People are treated with dignity and respect.
- Employees are encouraged and expected to offer innovative ideas to help solve problems and improve operations.
- Incentive programs reflect a bias toward long-term plant performance and safety.
- Complete, accurate and forthright information is provided to oversight, audit and regulatory organizations.
- Responsibility and authority for safety are well defined, understood and integral to work scope performance.
- Organizational safety responsibilities are sufficiently comprehensive to address work activities and the associated hazards.
- Personnel are held accountable at all levels of the organization in meeting standards and expectations needed to fulfill safety responsibilities.
- Strategic plans, manuals, directives, procedures and desk instructions are posted on the ORP web page.

ORP Management Systems to Execute Outcomes

- ORP FRAM Revision 5.
- Human Resource Management Systems for position description, individual performance plans (IPPs), and employee feedback.
- Workforce Management Systems for resource allocation, reorganizations, filling vacant positions and time management.
- Employee and Labor Relations.

Discussion

Sections 5, 6, Appendix A and Appendix C of the ORP FRAM, Revision 5, establishes clear roles and responsibilities for each ORP organizational element. Clear lines of authority are established and work responsibilities identified for each functional area. The flow of responsibilities, authorities and inputs are defined from the ORP Manager down to individual contributor, and the responsible contractor level. Reporting relationships, positional authorities are commensurate with safety responsibilities.

Specific roles and responsibilities for safety are further clarified, as appropriate, in ORP implementing documents, which further specify roles, responsibilities, and levels of authority for specific work activities and functions.

ORP managers and workers at each level are responsible and accountable for understanding and implementing established standards for safety, environmental protection, quality and efficiency. Workers are responsible for their personal safety and the safety of their peers.

The Human Resources Management System is the primary vehicle for ensuring ORP staff understand their responsibilities for meeting their requirements and responsibilities. The system ensures all staff-related situations are fulfilled so each desired outcomes is completed. This system also provides management with reasonable assurance regarding the integrity of personnel practices to accomplish effective communication and leadership preparation.

Workforce Management involves determining the federal baseline work scope requirements and skill needs for each year of execution. Management reviews workforce needs for outyears and prepares a resource profile, qualification and skill need analysis. The data is reviewed by senior management to ensure an equitable resource plan will be in place each year.

Supplemental Management Actions to Enhance Safety Culture

- ORP succession planning and Succession Plan (in progress).
- Completed a March 2005 update of the ORP FRAM to reflect the 2005 reorganization.
- Individual position descriptions completed for federal employees.
- Individual performance plans (IPPs) completed for federal employees.
- ORP interface and project review meetings with contractors to discuss project progress and safety performance.
- Update of the ORP web page enhancing safety management expectations (in progress).

Primary ORP Procedural Mechanism

- a. ORP M 411.1-1, *Safety Management Functions, Responsibilities, and Authorities Manual for the U.S. Department of Energy, Office of River Protection*.
- b. [DOE O 320.1, Change 1, Acquiring and Positioning Human Resources](#).

7.1.3 Principle 3: Competence Commensurate with Responsibilities

ORP has an effective safety management system and human resource management system to ensure personnel possess the experience, knowledge, skill, and abilities necessary to discharge their responsibilities.

Attributes and Expected Outcomes

- People are ORP's most valuable asset.
- ORP places a high priority on recruiting, selecting and retaining outstanding technical staff.
- ORP values continuous learning by maintaining a disciplined technical training program to ensure all workers are qualified and experienced to perform their assigned responsibilities.
- Assignments and delegations of safety are only made to individuals with the necessary technical expertise and experience.
- The organization avoids complacency and cultivates a continuous learning environment.
- Training upholds management standards and expectations.
- Individuals are well informed of the underlying lessons learned from significant industry events.
- Expertise in root cause analysis is desired and applied to identify and correct the fundamental causes of events.
- Processes are established to identify and resolve latent organizational weaknesses.
- Employees have confidence nuclear safety issues are prioritized, tracked and resolved in a timely manner.
- A questioning attitude is cultivated.
- Contingencies are developed to deal with worst-case possible outcomes.
- Anomalies are investigated, analyzed and promptly mitigated.
- Personnel do not proceed in the face of uncertainty.
- Differing opinions are welcomed and respected. A management system is in place to resolve differing professional opinions.

ORP Management Systems to Execute Outcomes

- Training and Employee Development.
- Human Resource Management System.
- Federal Technical Capability Program.
- Performance and Recognition Program.
- Minority (Differing Professional) Opinion.

Discussion

Line management, Human Resources and Training work together to ensure qualified workers are placed in each approved position. Position Descriptions are issued to each worker defining work and safety responsibilities. Line management works with Training to establish qualifications and requirements for each position. Individual Performance Plans are prepared with a commensurate training and qualifications action plan. A training plan is approved annually by ORP management identifying the qualifications and requirements for each position in accordance with [DOE O 360.1B, *Federal Employee Training*](#).

DOE O 360.1B, Chapter II, prescribes the general requirements associated with the Technical Qualification Program (TQP) and outlines the content requirements for HQ and Field Office procedures which govern implementation of the ORP program. The Richland Operations Office (RL) Office of Training has lead responsibility for implementing the program and provides this function for ORP. This is a rigorous qualification program specifically designed to ensure technical competency in mission-related areas, commensurate with job responsibility. ORP has employees participating in the Technical Qualification Program by functional area, including: nuclear safety systems, mechanical systems, fire protection, environmental compliance, chemical processing, facility maintenance management, waste management, and safeguards and security.

As part of ORP's personnel performance management system, employees meet with their supervisor to discuss and agree upon an annual individual performance plan (IPP) containing qualification activities tailored to specific job duties. This process applies to all employees and ensures employee competence is not only maintained, but continually enhanced.

The DOE Federal Technical Capability Program (FTCP) provides for recruitment, deployment, development, and retention of personnel with the demonstrated technical capability to safely accomplish DOE missions and responsibilities. The ORP Manager chairs the FTCP panel which reports to the Deputy Secretary and is responsible for overseeing and resolving issues affecting the Program.

ORP recognizes the importance of employee contributions to the success of our mission. Employee actions which improve the performance in the areas of safety, environmental excellence, quality of work, leadership, teamwork, customer satisfaction, and cost effectiveness are the keys to our success. The Recognition and Awards Program is used to recognize employee contributions and successes. Additionally, the recognition program is designed to recognize employee performance in the immediate time frame of the activities involved, such that maximum peer exposure to excellent performance and continuing improvement is achieved.

A system for resolving issues where staff may have a minority or Differing Professional Opinion (DPO) regarding the operation or management of ORP projects or programs is critical. ORP is in the process of developing and implementing a DPO process. The program includes resolution of opinions related to a policy or practice which:

- Differs from previous management decisions, stated positions, or established policies or practices.

- In the opinion of the employee, has not been adequately considered.
- If not adopted, has a reasonable probability of having significant negative impact on the activity in question with respect to safety, efficiency, or quality.

Supplemental Management Actions to Enhance Safety Culture

- Development of the ORP Training and Qualifications Management Plan (in concurrence).
- February 2005 update of the ORP Quality Assurance Program Description.
- Development and completion of ORP customized OSHA 300 and 600 training classes. The training includes on-site facility walkthroughs and OSHA inspections.
- Development and implementation of subject matter expert (SME), facility area engineer (FAE) and site safety officer (SSO) qualification programs.
- Implementation of the “Hooked on Safety” training for the Federal Technical Capabilities Program (FTCP), Facility Representatives and ORP staff.
- The DOE Electrical Safety Handbook.
- Safety conscious work environment training for the TFCP, FCOG and ORP staff.
- A 3-day in-house project management training program is developed and provided as needed to ORP staff.
- Recruiting and hiring of qualified people with expert disciplines.
- An active intern program.

Primary ORP Procedural Mechanisms

- a. ORP M 411.1-1, *Safety Management Functions, Responsibilities, and Authorities Manual for the US Department of Energy, Office of River Protection.*
- b. [ORP M 420.2c, Facility Representative Program.](#)
- c. [ORP M 414.1, Quality Assurance Program Description.](#)
- d. [RL Integrated Management System \(RIMS\), Training and Employee Development](#)
- e. 97-OTR-60, *RL Technical Qualifications Program Plan.*
- f. [DOE O 331.1B C1, Employee Performance Management System.](#)
- g. [DOE O 360.1B, Federal Employee Training.](#)

7.1.4 Principle 4: Balanced Priorities

The ORP management system requires resources to be appropriately allocated to address safety, programmatic, and operational considerations. Industry accepted project management systems are in place to plan, execute, control, and monitor work scope. Activities needed to protect the public, workers, and the environment are a priority when work activities are planned and performed.

Attributes and Expected Outcomes

- Project Management systems are in place to plan the required work scope, identify performance progress, monitor performance efficiency, control cost to authorized funding

levels, and implement baseline changes as needed.

- Safety and production concerns receive balanced consideration in funding/schedule decisions.
- System checks and balances are in place to make sure safety considerations are adequately weighed and prioritized.
- Baselines are vigorously maintained and controlled to ensure only authorized work scope is performed.
- Monthly project and program reviews occur with the contractor to review technical, cost, schedule and safety performance.
- Adequate resources are made available for safety upgrades to aging infrastructure.
- ORP has a knowledgeable workforce to make a broad spectrum of project, operational and technical decisions.
- Personnel are systematic and rigorous in making decisions which support safe, reliable plant operation and facility construction.
- Single-point accountability is maintained for important-to-safety decisions, allowing for ongoing assessment and feedback.
- Candid dialogue and debate are encouraged when safety issues are being evaluated.
- When previous operational decisions are called into question by new facts, the decisions and associated assumptions are reviewed to improve the quality of future decisions.

ORP Management Systems to Execute Outcomes

- Projects Controls.
- Baseline Change Management.
- Acquisition Management.
- Asset and Property Management.

Discussion

The Project Management System provides requirements, products and services, and guidance to ORP employees planning and overseeing Hanford clean up and closure activities. The ORP management system establishes the framework and context for implementing DOE P 413.1, *Program and Project Management Policy for the Planning, Programming, Budgeting, and Acquisition of Capital Assets*; DOE O 413.3 Change 1, *Project Management for the Acquisition of Capital Assets*.

The ORP Project Management System is founded upon the key principles of line management accountability, effective up-front planning, management of risk, accurate performance measurement, and communication with stakeholders. Project management is based on the premise of executing work in accordance with a well thought out plan in terms of safety, quality, cost, and schedule.

DOE/RL-2002-47, Revision D, *Performance Management Plan for the Accelerated Cleanup of the Hanford Site*, provides an overview of the basic planning and work processes implemented at ORP. It also provides a roadmap to the overall planning process and work scope priorities for

Hanford's environmental management activities. In general terms, decision-related actions by ORP can be viewed in three major stages: (1) planning process, (2) decision process, and (3) decision implementation.

RPP-20353, Revision 0, *Integrated Hanford Baseline Description*, provides a summary level description of the Hanford mission scope, schedule and cost baselines. The document also defines:

- Integration functions between ORP and RL.
- Opportunities for increasing cost-effectiveness and timeliness of Hanford cleanup.
- The approach for managing programmatic risk

ORP authorizes, manages, and performs Hanford environmental management to a baseline that reflects the technical requirements, estimated cost, and estimated schedule of the project. The baseline is what DOE and its contractors work to achieve. It is a formal set of scoping documents (e.g., WBS, WBS Dictionary, P3 schedules, cost estimate documents, resource-loading, risk analysis) which is updated through the formal change control process.

The Performance Management Plan is the fundamental work definition document for cleanup, infrastructure, and environmental management work at Hanford. Through the application of systems engineering to the many requirements and planning documents and processes, this specification captures the applicable requirements and planning assumptions for site-wide activities and the individual project-specific activities. The requirements and planning assumptions reflect DOE's application of the safety values, priorities, and critical success factors expressed by those involved with and affected by cleanup.

Prior to work execution, the Work Breakdown Structure (WBS) is submitted and approved by ORP. Each WBS element is assigned to a Federal staff member to ensure that all work is reviewed. Annual assessments of the contractor's Accounting System occur to ensure adequate controls are in place to record costs. Assessments are performed using ongoing operational awareness activities, the results of other ORP assessments, along with Defense Contract Audit Agency (DCAA) and contractor internal audits. Annually, ORP and the contractors assess the overall management controls by performing Summary Management Reviews (SMRs) of the project and administrative functions in accordance with the Federal Manager's Financial Integrity Act (FMFIA). The purpose of these reviews is to identify significant issues which may necessitate problem solving and corrective actions. Monthly reporting of project status is provided to DOE Headquarters.

Specific requirements to oversee TFC operations are communicated through a variety of mechanisms, including: procedures, work plan guidance documents, individual performance plans and specific requirements identified in their position descriptions. Federal program/project managers meet regularly to review baseline performance, discuss schedule/cost variances, interface issues and status of GFSI. Formal assessments are performed in accordance with ORP M 220.1 "Integrated Assessment Program." In addition, on-site Facility representatives are an integral part of the day-to-day oversight of the contractor activities. Confirmation of work scope completion is conducted in several ways such, as field walk downs, verification of documents, plans and detailed review of activity based schedules.

WTP Oversight is also in accordance with ORP M 220.1. The manual details ORP's procedures for implementing DOE Policy 450.5, Line Environment, Safety, and Health Oversight. The line managers and directors annually establish and execute their assessment plan. Line management reviews monthly project safety, technical, cost and schedule status with contractor management.

Baseline Change Management

Change packages describe proposed changes to contractor and project specifications and/or baselines including rationale, impact, and timing of those changes. The process includes approved procedures, change approval at appropriate levels, communication of approved changes to affected organizations, and planning and tracking of change implementation.

Acquisition Management

The Acquisition Management System provides direct support to the ORP for the purchase and delivery of services, materials, equipment, and supplies. The DOE-HQ Procurement Executive has delegated procurement authority to the Head of the Contracting Activity (ORP Manager) subject to various approval thresholds (see RIMS organization specific Review Requirements, [PRO-045](#)). The ORP Manager has further delegated this authority to the OPA Director and designated contracting officers. By this delegated authority, contracting officers are authorized to enter into, administer, and terminate contracts. Contracting officers are responsible to ensure that all requirements of law, regulations, executive orders, and other applicable procedures have been met.

Effective acquisition management and financial assistance exists, ensuring quality goods and services are obtained at reasonable prices, in a timely fashion, in accordance with statutory and regulatory requirements, and project needs. The system also ensures work is performed to established technical and quality standards, and effective administrative controls.

Asset Management

Effective site management requires DOE provide responsible stewardship of Hanford assets and resources. This management system provides stewardship of federal assets through processes addressing real estate, real property, and personal property requirements. Program descriptions provide discussions of DOE's programs and approaches in the areas of Cultural Resources, Energy and Utilities Management, and Life Cycle Asset Management. Support needed by federal staff is addressed in processes for government motor vehicles and a variety of office services. Finally the process to manage materials transportation and packaging (non-radioactive) activities is addressed within the Asset and Infrastructure management system. All these activities are critical steps in assuring ORP can reach our objectives in a safe, responsible, and efficient manner.

Primary ORP Procedural Mechanisms

- a. [ORP M 413.3-1, Project Reviews and Baseline Change Control.](#)
- b. DOE/RL-2002-47, Revision D, *Performance Management Plan for the Accelerated Cleanup of the Hanford Site*, <http://www.hanford.gov/docs/rl-2002-47/rl-2002-47.pdf>.

- c. RPP-20353, Revision 0, *Integrated Hanford Baseline Description*.
- d. [DOE O 413.3, Change 1, Program and Project Management for the Acquisition of Capital Assets](#).
- e. 24590-WTP-PL-TE-01-012, *WTP Project Execution Plan*.
<http://apweb04.rl.gov/doeorp/orp/docs/52/docs/BNIPEP.pdf>
- f. RPP-6017, Revision 0, *Draft Project Execution Plan for the Tank Farm Contractor*,
http://apweb200.rl.gov/rapidweb/chg/chgtoe/index3.cfm?FileName=/docs/53/docs/Technical_BL_ID_Control.htm&Pagenum=53

Supplemental Management Actions to Enhance Safety Culture

- ORP established a Corporate Board to review work scope priorities, baseline work plans, and budget request documents. The Corporate Board ensures safety requirements are highest priority for funding allocation.
- The ORP Change Control Board (Tank Farms) and the Joint Trend Control Board (WTP) review baseline change requests and ensure revisions do not impact safety requirements or expectations. Both of these change boards have operating procedures in place, which can be viewed at <http://apweb04.rl.gov/doeorp/orp/docs/75/docs/ORPM413.3-1.pdf>
- Annual budget requests are presented to the general public, Regulators and the Hanford Advisory Board to collect feedback and ideas for improvement.
- Annual budget and technical presentations are posted to the ORP web page for public review. Presentations identify work scope priorities and assurance safety requirements receive adequate funding allocation.
- The DOE, the U. S. Environmental Protection Agency, and the State of Washington Department of Ecology have a comprehensive cleanup and compliance agreement (Hanford Federal Facility Agreement and Consent Order or HFFACO <http://www.hanford.gov/tpa/coverpg.htm>). The HFFACO: 1) defines and ranks cleanup commitments, 2) establishes responsibilities, 3) provides a basis for budgeting, and 4) reflects a concerted goal of achieving safety and full regulatory compliance with enforceable milestones.

7.1.5 Principle 5: Identification of Safety Standards and Requirements

The ORP safety management system and documented safety analysis (DSA) approach requires associated hazards are evaluated and safety standards/requirements are established before work is performed. Safety standards and requirements provide adequate assurance the public, workers, and environment are protected from adverse consequences.

Attributes and Expected Outcomes

- Facilities are designed, constructed, and maintained using industry codes and standards.
- Clear technical safety directives are based on sound engineering data and judgment.
- A clearly-defined set of safety requirements and standards are invoked in management and construction contracts.
- Features designed to maintain critical safety functions are recognized and managed as

priority items.

- Design and operating margins are carefully controlled and changed only with special consideration and analysis.
- Equipment is meticulously maintained well within design and requirements.
- Risk analyses outcomes are considered in plant activities and process changes.
- Plant activities are governed by comprehensive and high-quality processes/procedures.

ORP Management Systems to Execute Outcomes

- Safety Basis Management System.
- Documented Safety Analysis (DSA) and Authorization Basis Management.
- Environmental Management System.

Discussion

ORP has systematic DSA and Authorization Basis Management Systems in place to ensure appropriate hazards analysis is performed, per agreed to safety standards, and mitigated before work is executed. Hazard mitigation actions are initiated for the identified hazards to ensure the workers and environment are protected from adverse consequences.

For the TFC, a Standards/Requirements Identification Document ([S/RID](#)) contains the minimum set of environment, safety and health (ES&H) requirements to be implemented by a facility or activity. The S/RID is formatted based on the functional areas listed in the *U.S. Department of Energy (DOE) Environment, Safety and Health Configuration Guide* (ES&H Guide) (Revision 0, dated July 30, 1993) and when implemented, the requirements provide an adequate level of protection for the environment, worker and public health and safety during design, construction, and operation. The S/RID is a dynamic document and is revised when changes occur in mission, configuration, or when applicable standards/requirements changes are approved.

The contractor S/RID contains those standards/requirements applicable and necessary for the safe operation of the tank farm facilities. The S/RID is prepared by those individuals responsible for the operation of facilities or the performance of activities which may present a potential threat to the health and safety of the workers, public, or environment.

All requirements contained within the S/RID are considered mandatory. Each of the S/RID functional areas provide interpretive authority to the contractor concerning the adequate and mandated set of requirements.

The TFC document hierarchy is multi-tiered beginning with the Contract and Authorization Agreement executed with DOE-ORP. The document hierarchy identifies management plans which establish the method to accomplish a given scope of work or a specific task. Figure 5 below identifies the relationships of the TFC S/RID safety components (Authorization Basis or DSA) to the contract, Authorization Agreement and supporting procedures.

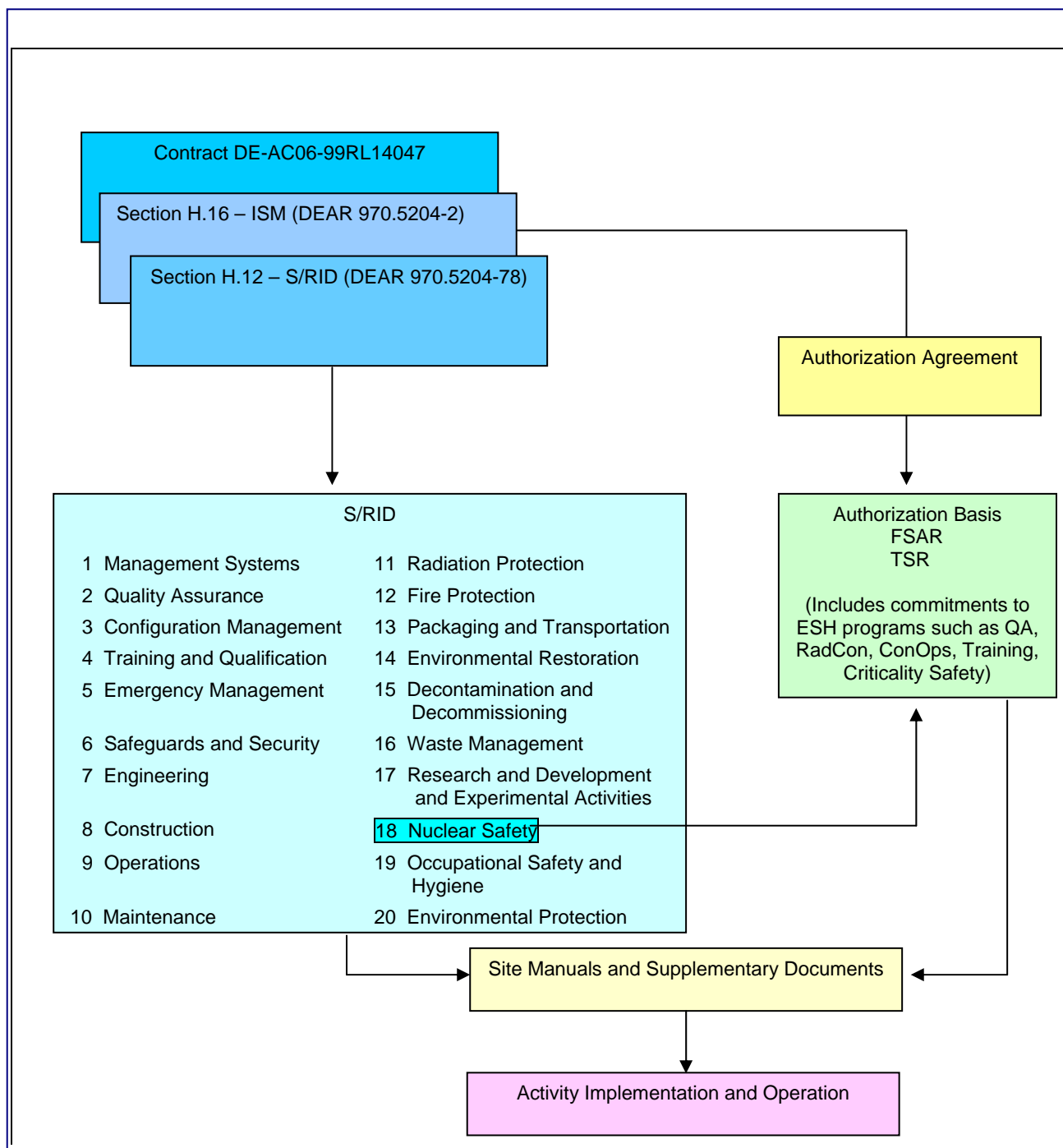


Figure 5. TFC ISMS Implementation.

The BNI contract establishes the requirement to use an ISM-based process to develop the design and construction authorization basis for the WTP. BNI is required to (1) define its processes, (2) identify the hazards associated with the defined processes, (3) develop control mechanisms to

mitigate the hazards, and (4) define standards to implement the control mechanisms. BNI submits its analysis and proposed standards to the ORP for approval. The process, Figure 7, is iterative, with feedback and improvement as the design progresses.

The authorization basis is comprised of approved Preliminary Safety Analysis Report, Safety Requirements Document and Quality Assurance Program. The PSAR is updated biennially, the Quality Assurance Program is updated annually, and the Safety Requirements Document is updated as needed. Pending these updates, changes to details in the PSAR or SRD are made using Authorization Basis Amendment Requests. These changes are developed by the contractor using an integrated safety management hazard analysis process, and reviewed by DOE for consistency with contractually required ISM principles and consensus standards.

The WTP design work is performed under radiological, nuclear, and process safety requirements and the regulatory process specified by the WTP Contract. Execution of the regulatory process during the design phase results in the development of an authorization basis for the facility. The authorization basis is the composite of information submitted to, and accepted by, DOE that responds to radiological, nuclear, and process safety requirements.

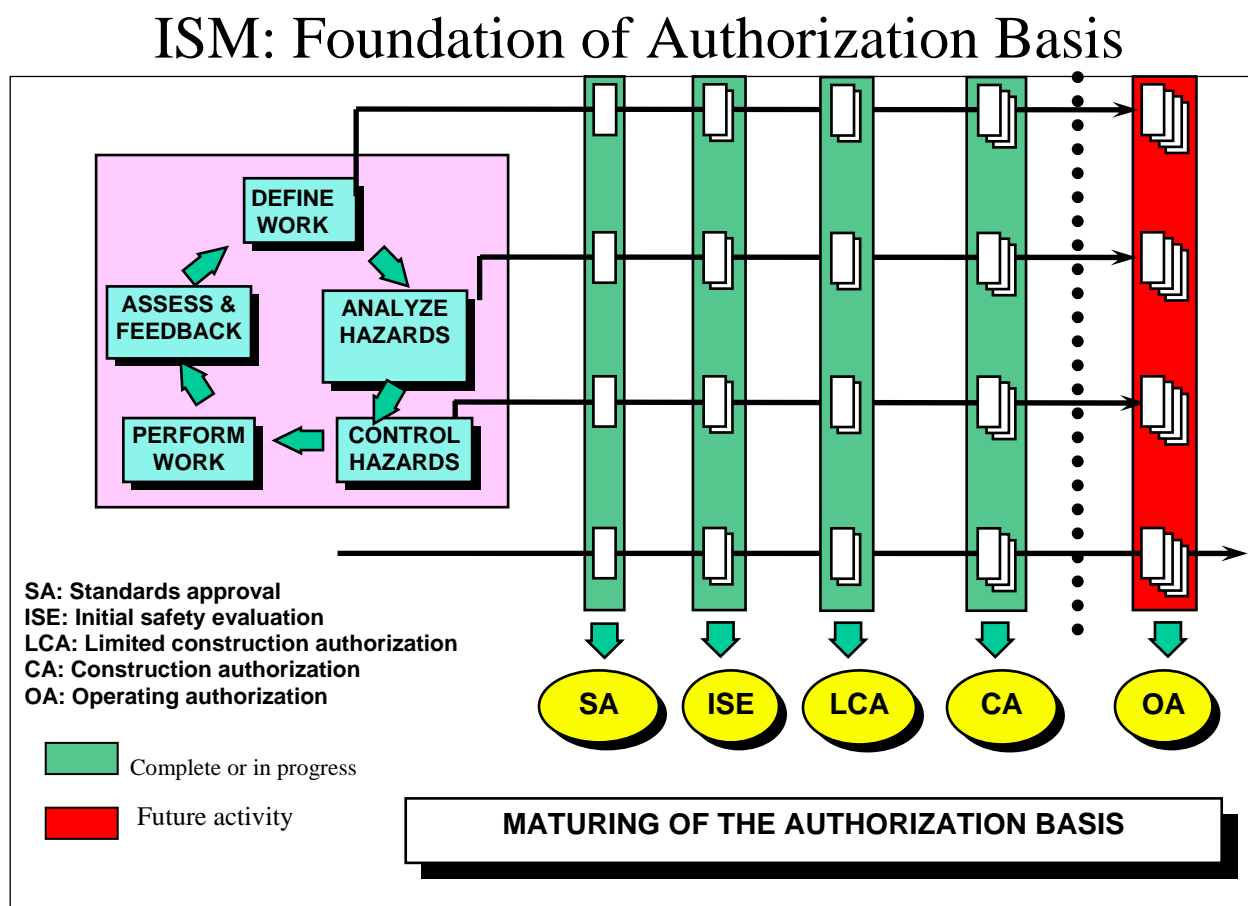


Figure 6. WTP ISMS Implementation.

The WTP authorization basis (AB) oversight process involves multiple steps of contractor submittals and specific authorization actions. Contractor submittals provide the information and commitments that serve as the basis for authorization decisions made by the Department of Energy (DOE), Office of River Protection (ORP). The authorization basis, as approved by DOE ORP, describes the safety basis for the facility, and is the benchmark used to evaluate the safety implications of changes made to the WTP design. As construction and design continue, the contractor prepares and submits periodic updates of authorization basis documents to ORP. Each update includes a description of the change and the associated benefit of implementation. During FY 2004, over 60 authorization basis amendment requests (ABAR) reviews were conducted and subcontractor support to these reviews totaled approximately. So far in FY 2005, 24 ABAR reviews have been completed and another 34 ABARs have been submitted for review.

WTP contractor revisions to the authorization basis are performed in accordance with the ISM System Description, as shown on Figure 7.

Supplemental Management Actions to Enhance Safety Culture

- ORP safety management oversight program (in development).
- WTP Safety Requirements Document and bi-annual review of the WTP Preliminary Safety Analysis Report.
- Review of the Tank Farms Documented Safety Analysis (DSA).
- Implementation of the environmental management system (EMS) per DOE O 450.1.
- WTP Construction Authorization.
- WTP Authorization Basis change management (ABARs) for facility design and construction.

Primary ORP Procedural Mechanisms

- a. [ORP PD 420.3, Safety Basis Management.](#)
- b. 24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document.*
- c. DOE/RL- 96-003, *DOE Process for Radiological, Nuclear, and Process Safety Regulation of the RPP Waste Treatment Plant Contractor.*
- d. DOE/RL-96-004, *Process for Establishing a Set of Radiological, Nuclear, and Process Safety Standards and Requirements for the RPP Waste Treatment Plant Contractor.*
- e. DOE/RL-96-005, *Concept of the DOE Process for Radiological, Nuclear, and Process Safety Regulation of the RPP Waste Treatment Plant Contractor.*
- f. DOE/RL-96-006, *Top-Level Radiological, Nuclear, and Process Safety Standards and Principles for the RPP Waste Treatment Plant Contractor.*
- g. [HNF-SD-MP-SRID-001, CH2M HILL S/RID.](#)

7.1.6 Principle 6: Hazard Controls Tailored to Work Being Performed

The ORP safety management system requires administrative and engineering controls designed to prevent and mitigate hazards tailored to the work being performed. Hazards are analyzed and

mitigated before work begins. Workers actively participate in work planning and hazard mitigation.

Attributes and Expected Outcomes

- Work hazards are controlled to prevent or mitigate accidents and incidents.
- Work hazard analysis is based on sound engineering data and judgment.
- Emphasis is placed on designing the work and controls to reduce/eliminate the hazard.
- Work is not performed until the hazard analysis is complete and potential threats are eliminated.

ORP Management Systems to Execute Outcomes

- Safety Basis Management System.
- Documented Safety Analysis (DSA) and Authorization Basis Management Safety Evaluation Reports (SERs).
- Environmental Management System.
- ISMS Annual Declaration process.

Discussion

The terms and conditions for ORP safety expectations are defined in Section 4.0 of this plan. The DOE safety expectations for its contractors are set forth as contract requirements. DOE has identified safety requirements in rules and DOE orders which are supported by a wide variety of associated technical standards, guides, and manuals. DOE approval of the contractor's integrated safety management description and oversight of its implementation are fundamental to DOE in satisfying its responsibilities for ensuring safety.

ORP's graded approach ensures that as hazards increase, increasing controls are implemented to prevent and mitigate activity-specific hazards. For example, ORP facilities are categorized by hazard whereby higher hazard facilities must have a more comprehensive Safety Analysis Report (SAR). In addition, depending on the hazards associated with a particular job, a hazards review may be used.

Responsibility for hazard analysis and development/approval of operational controls rests with the operating contractor, with periodic oversight by ORP personnel. For high-hazard nuclear facilities, ORP uses formal authorization agreements. Authorization agreements are developed in conjunction with startup (or restart) approval by DOE and approval of authorization basis documents.

For specific work activities, contractor line, safety, environmental, and radiological control personnel jointly review planned higher risk work, identify radioactive and chemical material inventories, and identify potential hazards. For lower risk work, selected subject matter experts are consulted to assist with the preparation of work documents. Workers are made aware of chemical inventories and the proper use of chemicals. The Employee Job Task Analysis (EJTA) is used to assess work-place hazards and provide data to determine appropriate levels of medical

monitoring. The EJTA and job hazard analysis processes used to identify hazards at the activity level is a line management responsibility, include employee involvement, and the appropriate participation of other support personnel.

ISMS Declaration

ORP performs an annual ISMS declaration of its contractor systems and its own system. In October 2004, ORP declared its ISMS ready for FY 2005 operations. The ORP ISMS readiness is accomplished through successful implementation of the ISM System Description requirements. The 2005 ORP ISMS Declaration report provides objective evidence of viable system performance, and the need for improvement in some areas, including:

- Improved work planning and control processes.
- Improved job hazards analysis and hazard mitigation actions before work begins.
- Improved root cause analysis and subsequent corrective action planning.
- Improved documentation, tracking and closure of corrective actions.
- Improved training and qualification programs for Federal employees.
- More timely feedback of significant events and lessons learned.

Primary ORP Procedural Mechanisms

- a. [ORP M 420.1-1, Fire Protection Program.](#)
- b. ORP PD 420.3, *Safety Basis Management.*
- c. [DOE O 440.1A, Worker Protection Management for DOE Federal and Contractor Employees,
http://www.directives.doe.gov/cgi-bin/explhcgi?qry1259411322;doe-203](#)
- d. 24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document.*
- e. DOE/RL- 96-003, *DOE Process for Radiological, Nuclear and Process Safety Regulation of the RPP Waste Treatment Plant Contractor.*
- f. DOE/RL-96-004, *Process for Establishing a Set of Radiological, Nuclear and Process Safety Standards and Requirements for the RPP Waste Treatment Plant Contractor.*
- g. DOE/RL-96-005, *Concept of the DOE Process for Radiological, Nuclear and Process Safety Regulation of the RPP Waste Treatment Plant Contractor.*
- h. DOE/RL-96-006, *Top-Level Radiological, Nuclear, and Process Safety Standards and Principles for the RPP Waste Treatment Plant Contractor.*
- i. RL/REG-97-13, *Regulatory Unit Position on Contractor Initiated Changes to the Authorization Basis.*
- j. RL/REG-98-05, *Inspection Program Description for the Regulatory Oversight for the RPP-WTP Contractor.*
- k. RIMS procedure, [Federal Employee Occupational Safety and Health \(FEOSH\), Hanford's Program.](#)
- l. DOE O 450.1, [Environmental Protection Program.](#)

Supplemental Management Actions to Enhance Safety Culture

- Tank Farm Documented Safety Analysis (DSA).
- WTP ABAR SERs.
- WTP bi-annual PSAR update. The next PSAR update is scheduled for October 2005 submittal to ORP.
- ISMS annual declarations for TFC and WTP contractors.
- Independent ISMS reviews and assessments focused on corrective action plan closure.

7.1.7 Principle 7: Operations Authorization

The ORP safety management system requires the conditions and requirements to be satisfied for construction and/or operations to begin are clearly established and agreed upon. ORP provides formal Construction and Operations Authorization to the contractor before work begins.

Attributes and Expected Outcomes

- Formal construction and operating authorization agreements are maintained between the owner and operator.
- Readiness is verified before hazardous operations begin.
- Oversight is used to strengthen safety and improve performance.
- A mix of self-assessment and independent oversight reflects an integrated and balanced approach monitoring techniques and procedures for operation.
- Periodic safety culture assessments are conducted and used as a basis for improvement.
- The organization is alert to detect and respond to indicators which may signal declining performance.
- The insights and perspectives provided by quality assurance, assessment, employee concerns, and independent oversight are valued and used to make decisions.
- Senior management is briefed on the results of oversight activities to gain insight into safety performance.

ORP Management Systems to Execute Outcomes

- Employee Concerns Program.
- Lesson Learned Program (in progress).
- Quality Assurance Program.
- Startup and Restart of Tank Farm Nuclear Facilities.
- Environment, Safety and Health Reporting System.
- Safeguards and Security Awareness Program.
- Performance Evaluation System.
- Communications and Stakeholder Interface.

Discussion

Operations Authorization Agreements and Construction Authorization Agreements are required to confirm adequate work preparation prior to authorizing the performance of facility operations and construction of facilities. DEAR 970.5204-2(7) requires DOE and the contractor to establish and agree on the conditions and requirements which must be satisfied for work or operations to be initiated. The conditions and requirements are included in ORP's prime contracts and separate Operations and Construction Authorizations. The formality of the review process and the level of authority for agreement are based on the hazard and complexity of the work being performed. DOE M 425.1, *Startup and Restart of Tank Farm Contractor Nuclear Facilities*, provides readiness guidance for ORP facilities.

The contracts between ORP and its contractors constitute the basic agreement by which all work is performed. As an example, CH2M HILL S/RID requirements (see Section 3.1.5) define the process for analyzing hazards and "developing hazard controls."

For high-hazard activities, DOE recognizes the need for specific authorizing agreements. The authorization agreement contains key terms and conditions under which the contractor is permitted to perform work. The agreement incorporates ORP's review of the contractor's proposed authorization basis for a defined scope of work. "Authorization basis" includes aspects of facility design and operational requirements relied on by DOE to authorize operation. The analysis is described in documents such as Final Safety Analysis Reports (FSARs), hazard classification documents, Technical Safety Requirements (TSR), and DOE-issued Safety Evaluation Reports (SERs).

Although specifically designed for higher hazard facilities, ORP may elect to use authorization agreements in special situations for lower hazard activities depending on the complexity of the work and control required.

Employee Concerns Program

The U.S. Department of Energy (DOE), Office of River Protection (ORP) employee concerns program (ECP) ensures work-related concerns are addressed promptly, objectively, and with satisfactory resolution. The ECP Program Plan establishes a disciplined approach process for resolving, tracking and reporting concerns.

The DOE ORP believes investigating, understanding, and responding to employee concerns in a timely manner is a valuable tool for improving safety, the work environment and productivity. Employee concerns are most efficiently resolved when the employee resolves its concerns at the local level with their manager. However, when the employee cannot achieve resolution with their employer, or has a concern regarding retaliation, intimidation or harassment, the ORP expects the employee to come forward to the Employee Concerns office.

The ORP ECP provides an alternative (outside of the normal management chain of command) method for employees to raise concerns. ORP will review, investigate, and take action on

employee concerns in a manner which promotes confidentiality, resolution, work practice improvements, and prevents fear of reprisal.

Quality Assurance

The QA program is part of the management system used by ORP to ensure work is performed safely and in compliance with requirements. Management is responsible for ensuring the requirements of the QA program are implemented and followed by employees. Individuals are responsible for the quality of their work and for doing the work in compliance with the requirements.

ORP's QA program places accountability for quality on each person working on the RPP. In addition, it emphasizes the creation of an atmosphere in the workplace where the reporting and resolution of quality problems are encouraged and expected at all levels.

Performance Evaluation System

The ORP Performance Improvement Management System sets expectations for DOE to improve organizational effectiveness. Aspects of the effort include benchmarking, independent oversight, corrective action, self-assessment, lessons learned, and metrics. The system has the following purposes:

- Provide accurate technical, business, and operational performance information to ORP management and staff.
- Identify early warnings which lead to recommendations, resolution of problems to achieve program objectives, and lessons learned that preclude the recurrence of negative outcomes.
- Evaluate ORP conformance with established requirements.
- Evaluate effectiveness of ORP oversight of systems and controls designed to protect the environment, the health and safety of workers and the public.
- Coordinate external assessments.
- Maintain an effective self-assessment program.
- Coordinate evaluation of potential noncompliant events and findings.
- Provide information about ongoing performance improvements to the ORP Manager and Deputy Manager.
- Provide the Lessons Learned program or other suitable channels for information dissemination.

Lessons Learned

The ORP Lessons Learned program (in development) is to supplement corrective action management and encourage and reinforce feedback of experience into the appropriate management systems. The objective of this program description is to satisfy the requirements identified above as they pertain to feedback from lessons learned, which are not treated within the context of the Corrective Action Program.

Supplemental Management Actions to Enhance Safety Culture

- River Protection Project Authorization Agreement between DOE ORP and CH2M HILL Hanford Group, Inc.
- ORP Construction Authorization to BNI for WTP construction.
- Work, operating permits and construction permits.

Primary ORP Procedural Mechanisms

- ORP M 425.1, *Startup and Restart of Tank Farm Contractor Nuclear Facilities*, http://apweb04.rl.gov/doeorp/orp/docs/75/docs/ORP_M_425.1.pdf
- BNI Contract DE-AC27-01RV14136, <http://www.hanford.gov/orp/?page=40&parent=39>
- CH2M HILL Contract DE-AC27-99RL14047, <http://www.hanford.gov/orp/?page=53&parent=39>

7.2 Implementation of the Five Core Functions

According to DOE Policy 450.4, *DOE Safety Management System Policy*, the five core safety management functions provide the necessary structure for any work activity that could potentially affect the public, the workers, and the environment. The functions are applied as a continuous cycle with the degree of rigor appropriate to address the type of work activity and the hazards involved. The five core functions as they apply to ORP projects are shown in Figure 7.

7.2.1 Core Function 1: Define Scope of Work

Primary ORP Procedural Mechanisms

- ORP M 413.3-1, *Project Reviews and Baseline Change Control*.
- DOE/RL-2002-47, Revision D, *Performance Management Plan for the Accelerated Cleanup of the Hanford Site*.

Applicable Guiding Principle:
Balanced Priorities

Discussion

Strategic planning is the first step in defining work scope. DOE HQ maintains a strategic plan, DOE/RL-2002-47, Revision D, *Performance Management Plan for the Accelerated Cleanup of the Hanford Site*, for establishing goals and direction. The ORP strategic plan defines strategic goals, key success measures, objectives, and strategies for each ORP business line and focus area. Strategic plans are periodically updated, and changes affecting work scope are integrated as part of the comprehensive planning process.

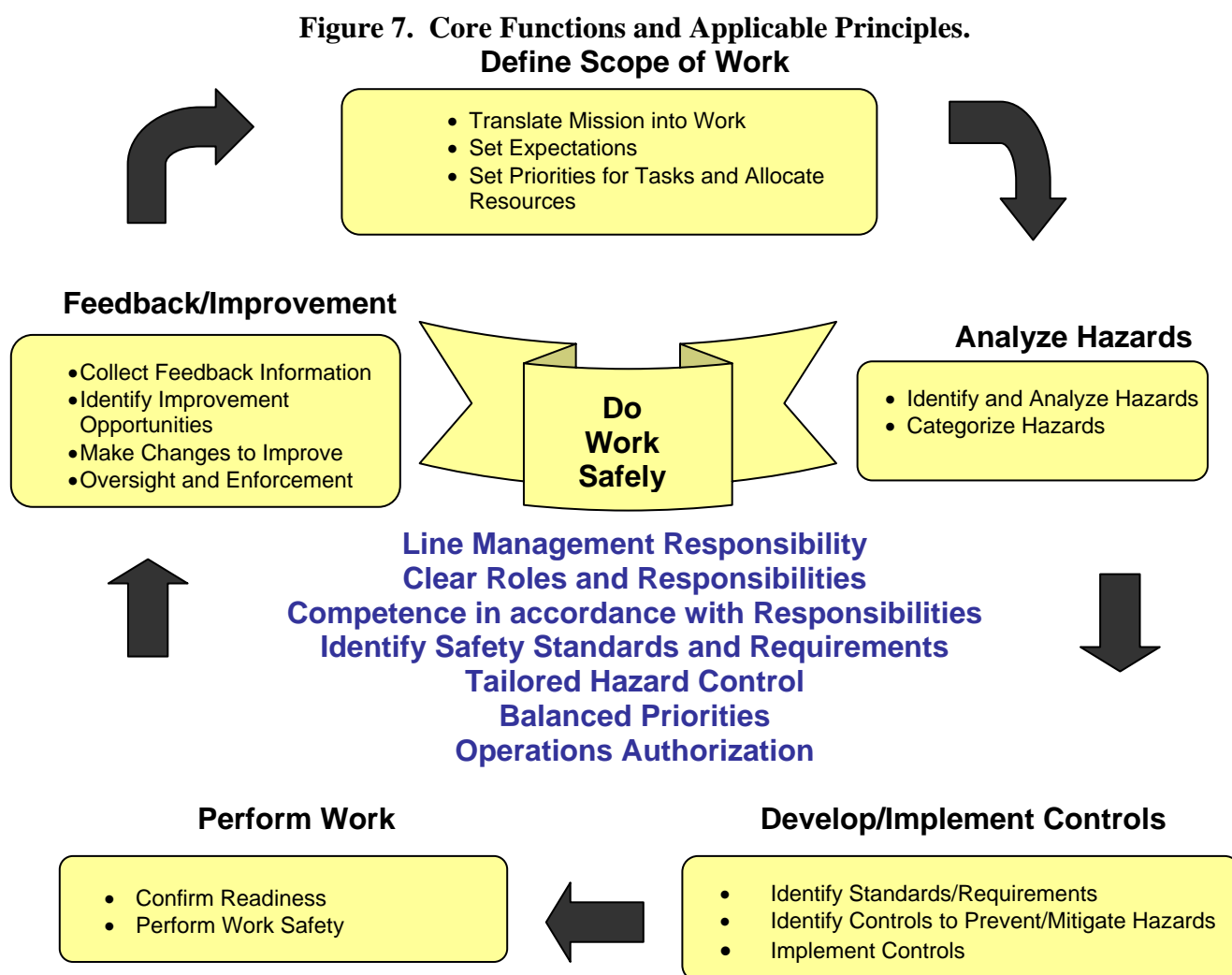
ORP translates strategic plans into definable work scope and provides strategic and out-year planning guidance to its contractors. For effective planning, strategic development and updates are aligned with the budget formulation and execution cycle.

The TFC baseline, which the contractor develops and ORP approves, serves as the execution document for each fiscal year's work at Hanford. The TFC baseline defines work scope, schedules (milestones), performance measures, and carry-over and new encumbrances and resources

(estimated manpower and costs) for the fiscal year. The TFC baseline, as the execution document, is also a collection point for all fiscal year performance measures and milestones from higher tier and program-specific planning documents.

ORP M 413.3-1, *Project Reviews and Baseline Change Control*, also defines the formal process for changing work scope. A change control ensures that appropriate management officials approve baseline changes exceeding defined thresholds before beginning work. The change control process also ensures that the TFC baseline is not changed unless associated with a change of scope.

Figure 7 shows graphically how the core functions integrate with the ISM principles for work scope definition.



The WTP performance measurement baseline consists of technical, scope, and related cost estimates as established in the Project Baseline. The technical requirements and objectives are used to develop the technical baseline, including work scope. The cost baseline represents estimates units and dollars required to accomplish the technical work scope. The schedule

baseline provides a set of time-phased, logically driven activities which incorporate the work scope as constrained to cost. This baseline is the starting point for any subsequent baseline change management and is modified only through a formal, documented change.

For BNI baseline change control, the WTP contractor uses a trend program (WTP Procedure 24590-WTP-GPP-GAB-00103) to identify, document, and disposition changes to the WTP contract and Performance Measurement Baseline (PMB). The WTP program separates approved trends (or changes) into two general groups: trends that constitute a contract change (defined as Pending Items) and trends that do not constitute a contract change but have an impact on the PMB. ORP's baseline change is designed to manage each general trend group.

ORP representatives also attend the biweekly WTP trend review meetings to maintain continual awareness of the WTP Trend Program including the scope, rough-order-of-magnitude cost and schedule impacts, and trend basis. Attendance at the biweekly WTP trend review meetings provides early notice of forthcoming contractual changes and allows responsive mobilization for evaluating WTP contract change requests and PMB updates.

7.2.2 Core Function 2: Analysis of Hazards

Primary ORP Procedural Mechanism

- a. ORP M 420.1-1, *Fire Protection Program*.
- b. ORP PD 420.3, *Safety Basis Management*.
- c. ORP M 220.1, *Integrated Assessment Program*.

Applicable Guiding Principle:

Balanced Priorities

Discussion

ORP uses S/RIDs to establish the level of hazard analysis and documentation required for all Tank Farm work activities. Except for nuclear facilities, responsibility for development and approval of auditable hazard analyses rests with the site management and operating contractor.

BNI ISM reviews for radiological, nuclear, and process safety hazards are conducted per procedure *Hazard Analysis, Development of Hazard Control Strategies, and Identification of Standards* (24590-WTP-GPP-SANA-002). These reviews are established to ensure the design is evaluated from the perspective of identifying potential hazards and for preventing or mitigating hazardous situations.

Safety analysis is a documented process that includes systematic identification and assessment of hazards posed by a nuclear facility or operation. For nuclear facilities, ORP personnel review facility safety documentation, including hazards analyses, facility classifications, Unreviewed Safety Questions (USQs), and structures, systems, and components classifications. ORP issues Safety Evaluation Reports (SERs) documenting review of contractor safety documentation and the basis for approval of the authorization basis documents. ORP line organizations continuously monitor and assess contractor processes for identifying, analyzing, and categorizing facility and activity hazards. ORP line personnel oversee management of the technical baseline (as defined in the contractor project baseline plans) for all facility process and safety systems and conduct

surveillances on contractor engineering organizations in support of operations. This ensures that safety documentation accurately reflects the plant/system technical basis and that required safety evaluations are performed. Test plans and test procedures are verified to ensure they accurately reflect plant configuration and to ensure that test acceptance personnel evaluate the performance of contractor engineering organizations as part of operations support. Review and approval of the SARs by ORP requires development of an SER.

7.2.3 Core Function 3: Develop and Implement Hazard Controls

Primary ORP Procedural Mechanism

ORP PD 420.3, *Safety Basis Management*.

ORP internal desk instructions 2.6, 2.7 and 2.8 for RCRA, Air and Water Permitting.

Applicable Guiding Principle:

Identification of Safety Standards and Tailor Hazards Controls to Work

Discussion

Responsibility for development and approval of operational controls derived from hazard analyses of non-nuclear facilities rests with the site management and operating contractor.

For high-hazard nuclear facilities, DOE developed the concept of authorization agreements, incorporating the results of ORP reviews of the contractor's proposed authorization basis for a defined scope of work.

The authorization agreement contains key terms and conditions (controls and commitments) under which the contractor is authorized to perform work. Any changes to these terms and conditions require DOE approval. In many respects, an authorization agreement parallels the license issued by the U.S. Nuclear Regulatory Commission for operation of commercial nuclear facilities. Unless specifically exempted by the ORP Manager, authorization agreements are required for all ORP high-hazard activities. Authorization agreements are developed in conjunction with startup (or restart) approval by DOE, approval of authorization basis documents by DOE, or any other direction provided to the contractor that alters the scope of operations, special terms, or conditions specified by DOE.

The authorization basis (or safety basis) consists of the facility design basis and operational requirements relied on by DOE to authorize operation and is described in documents including the FSAR and other safety analyses, hazard classification documents, TSR, DOE-issued SERs, and other facility-specific commitments made to ensure compliance with DOE rules, orders, or policies.

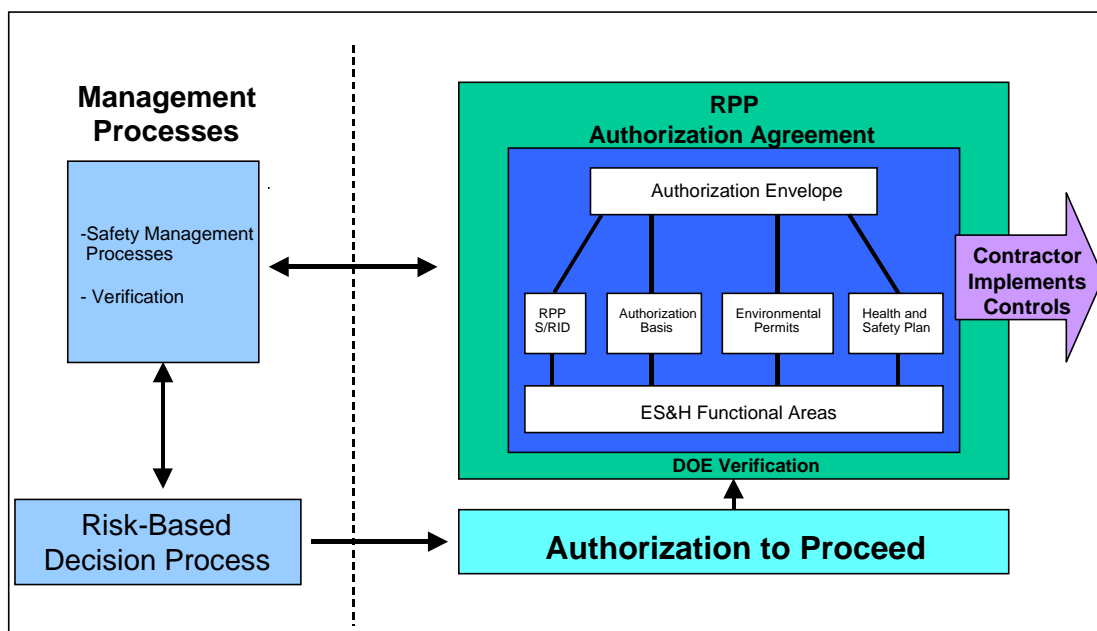
TSR are important authorization basis documents that define the conditions, safe boundaries, and the management or administrative controls necessary to ensure the safe operation of a nuclear facility. TSR controls are also designed to reduce potential risk to workers and the public from uncontrolled releases of radioactive materials or from radiation exposures due to inadvertent criticality. TSR include safety limits, operating limits, surveillance requirements, administrative controls, use and application instructions, and their bases, in support of the FSAR. The TSR

constitutes a contract between DOE and the facility operating management regarding the safe operation of the facility.

USQ evaluations are also important in maintaining the integrity of safety basis documents. A USQ exists if one or more of the following conditions result: (1) the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the FSAR could be increased, (2) the possibility for an accident or malfunction of a different type than any previously evaluated in the FSAR could be created, or (3) any margin of safety as defined in the bases of the TSR could be reduced. Inherent in an activity resulting in a USQ is the need for additional controls to be approved by ORP, necessitating a change to the facility authorization basis. ORP oversight of the Tank Farm contractor's USQ program ensures the authorization basis approved by DOE remains current and provides adequate level of protection to workers, the public, and the environment. For WTP, ABARs are used to keep the safety basis current.

The hazard controls process is shown in Figure 8.

Figure 8. ORP Hazard Control Process.



ORP routinely conducts field verification of controls addressed in the contractor's authorization envelope through assessments. Verification of controls is also a routine element of the ORP facility representative master assessment plan through surveillances and performance assessments.

ORP has implemented a systematic approach to managing programmatic risks, i.e., risks with respect to cost, schedule, and technical performance. This approach is dependent on the establishment of an integrated risk management process. The integrated program allows for the top-down-bottom-up flow of risk data and information. A byproduct of this process is enhanced communication within ORP.

7.2.4 Core Function 4: Perform Work Within Controls

Primary ORP Procedural Mechanism

- a. ORP M 420.2c, *Facility Representative Program*.
- b. ORP M 220.1, *Integrated Assessment Program*.
- c. ORP M 425.1, *Startup and Restart of Tank Farm Contractor Nuclear Facilities*.

Applicable Guiding Principle:

Identification of Safety Standards and Tailor Hazards Controls to Work

Discussion

ORP's mission is to provide leadership, direction, and oversight to ensure that site programs, operations, and resources are managed in an open, safe, environmentally sound, and cost-effective manner. In general, ORP's nuclear safety oversight of the contractor includes maintaining a continuous presence and awareness of contractor activities involving nuclear facilities and operations and their associated authorization bases, and identifying, communicating, and resolving nuclear safety issues; performing technical assessments of nuclear safety programs and activities; and reviewing and approving applicable compliance packages, authorization agreements, authorization basis documents, and USQ documentation.

ORP maintains operational awareness of contractor work activities primarily through facility representatives, as well as facility technical specialists and site technical specialists. In accordance with ORP M 420.2c, *Facility Representative Program*, facility representatives spend most of their time observing and assessing contractor operations via operational awareness and performance-based assessments. ORP facility representatives are formally qualified as part of the ORP training program, subject to continuing education requirements, and must qualify on a facility-specific basis.

DOE P 450.5, *Line Environment, Safety, and Health Oversight*, establishes that key DOE field office responsibilities include maintaining operational awareness, conducting reviews and assessments in support of operational readiness and verification, and conducting for-cause reviews as necessary. The policy also describes a periodic, value-added appraisal of sufficient frequency and duration to confirm the contractor's safe performance of work and the effectiveness of the self-assessment program. Currently, ORP performs this function as part of the technical assessment program, with smaller assessments being conducted throughout the year. ORP has developed an institutionalized integrated assessment process directly tied to the requirements of DOE P 450.5. Additionally, DOE P 226.1, *Department of Energy Oversight Policy*, was issued by DOE Headquarters on June 10, 2005. DOE P 226.1 and the soon to be released DOE O 226.1 will eventually replace the 450.5 series. The four essential elements of DOE P 226.1 are:

- A comprehensive and rigorous assurance system is implemented by DOE and its contractors at each site.
- DOE field element line management has oversight systems in place to evaluate programs and management systems.
- DOE Headquarters line management has oversight processes for DOE field elements.

- Independent oversight processes are performed by DOE organizations who do not have line management responsibility for the activity.

ORP M 220.1, *Integrated Assessment Program*, describes the assessment processes for ORP technical staff to monitor contractor performance to ascertain facility and program status, determine whether implementation of requirements is effective, and evaluate the effectiveness of the contractor's self-assessment program. A technical assessment is defined as an evaluation of contractor performance based on awareness of contractor work activities, data analysis, and comparison to the results of the contractor's self-assessment. ORP's consolidated annual assessment plan categorizes assessments by S/RID functional area, organization, and assessment type (required, prudent management, or reactive). ORP technical assessments are performance based, focusing heavily on results and effectiveness in addition to ascertaining compliance with requirements.

ORP is also responsible for performing reviews and assessments in support of contractor readiness assessments and operational readiness reviews. ORP M 425.1, *Startup and Restart of Tank Farm Contractor Nuclear Facilities*, documents the process for ORP review and approval of nuclear facility startups and restarts.

Readiness to proceed falls under DOE O 425.1C, *Startup and Restart of Nuclear Facilities*. Specifically, this directive is used in performing ORP's role in operational readiness reviews and readiness assessments. In practice, the approach has been extended to several ORP management assessments (e.g., DOE/RL-97-72, *Determination of Readiness to Implement Tank Waste Remediation System Basis for Interim Operations*) where a high-profile activity is neither a startup nor a restart, but the grading criteria justify a regimented determination of readiness. The criteria provided in these directives are often evaluated in the context of DOE O 430.1B, *Real Property Asset Management*.

The ORP manager has issued a stop work policy for the ORP facilities on the Hanford Site. The policy places responsibility and authority on every DOE employee to stop work immediately, without the fear of reprisal, when they are convinced a situation exists that places them, their coworker(s), or the environment in danger. "Stop Work" is defined as stopping the specific task or activity that poses danger to human health and/or the environment.

7.2.5 Core Function 5: Provide Feedback and Continuous Improvement

Primary ORP Procedural Mechanism

- a. ORP M 420.2c, *Facility Representative Program*.
- b. ORP M 414.1, *Quality Assurance Program Description*.
- c. ORP M 220.1, *Integrated Assessment Program*.
- d. ORP Employee Concerns Program Plan,
<http://www.hanford.gov/orp/?page=134&parent=0>

Applicable Guiding Principle:

**Operations
Authorization**

Discussion

Four primary mechanisms exist for ORP assessment and oversight. First, ORP management perform assessments for activities under their purview. Secondly, ESQ assesses ORP organizations and activities from an independent perspective. Thirdly, DOE HQ evaluates ORP performance through selected technical reviews. Lastly, external organizations, such as the DNFSB and the Washington State Department of Ecology, assess ORP activities and provide valuable feedback.

Numerous formal and informal mechanisms exist to obtain and communicate feedback on ORP and contractor activities. ORP Facility Representatives observe facility operations and provide real-time informal and formally documented feedback related to facility operations and program implementation. Facility technical specialists and site technical specialists conduct technical assessments of activities under their cognizance, and assessments serve as a formally documented source of feedback to the contractor. Technical assessments include evaluation of any applicable contractor self-assessments. Results of this evaluation are documented in the assessment and provided to the ORP program manager overseeing the contractor self-assessment program. Management walkthroughs provide another perspective on facility operations and program implementation. Special ORP assessments, including readiness assessments, operational readiness reviews, and authorization basis document reviews also evaluate contractor performance and are sources of feedback information.

Other activities, ranging from surveillances and document reviews to task team participation, may serve as feedback sources. Regular monthly meetings with contractor counterparts are important feedback sources. Twice yearly, key performance feedback is provided by ORP as part of the formal contractor Award Fee and performance evaluation process. The amount of Award Fee the contractor earns at the end of a rating period is determined after due consideration of performance and feedback for the period. Contractors are encouraged to self identify and report problems and may reduce fines and penalties in certain areas if they do so (for example, Price-Anderson Amendments Act activities).

Effective and timely feedback is critical to identification of improvement opportunities. In addition to the ORP feedback mechanisms discussed above, the contractor's Lessons Learned (references provided at <http://apweb05.rl.gov/rapidweb/chg/rppll/>) program sorts and screens lessons learned pertaining to the operation of ORP facilities, as well as other sites in the DOE complex. ORP line and program offices continually look for ways to improve contractor and DOE activities as part of the daily conduct of business. ORP personnel observe and participate in contractor critiques. Technical assessments and other evaluations of the contractor usually reveal opportunities for improvements, and committees that cut across organizational lines help disseminate information.

Continuous improvement requires action in areas where feedback has been provided and opportunities for improvement have been identified. Specific direction to the contractor is given in accordance with contract provisions. Management direction and/or a change in procedure is used to effect change within ORP. Changes made in response to an outside review are usually logged and tracked to closure, with a specific organization assigned the responsibility.

In addition to the elements discussed under Core Function 4, DOE P 450.5 also defines DOE field office oversight responsibility to include reviewing performance against formally established ES&H performance measures. In accomplishing ORP's oversight function, cognizant ORP staff review contractor performance against formally established ES&H performance measures and criteria set forth in procedures and guidance for specific programs and activities, such as emergency drill/exercise evaluations, oversight of contractor training and qualification program activities, fire protection, radiation protection, environmental protection, and natural phenomena hazards mitigation. ORP also uses information on reportable events, which is documented and tracked in the Occurrence Reporting and Processing System (ORPS) to identify trends and to assess corrective action effectiveness.

ORP believes investigating, understanding and responding to employee concerns provides a valuable tool to improve safety, the work environment and productivity at the Hanford Site. Employee concerns are most efficiently resolved when the employee resolves its concerns at the local level with its employer. When the employee cannot achieve resolution with its employer or has a concern regarding retaliation, intimidation or harassment, the ORP expects the employee to come forward to its Employee Concerns Office.

Employee Concerns Program

The ORP maintains an ECP (ECP Program Plan and procedures) whereby employees and contractors who encounter concerns or allegations regarding safety issues, management, the environment, fraud, waste, abuse, work processes, acts of reprisal, intimidation or harassment in the work place, have a safe and confidential channel to communicate their concerns.

Ensure all ORP employee concern items receive consistent attention, timely investigation, prompt resolution and closure. To the extent permitted by law, protect all records, activities, and deliberations acquired through the ORP ECP actions and handle all cases with the utmost discretion.

Methods to Obtain Openness Objective:

- Ensure all ORP employees and ORP contractor employees are aware of the ECP, and have readily available access to ECP personnel.
- Maintain a 24-hour employee concerns hotline.
- Assign dedicated ORP resources to coordinate and investigate employee concerns.
- Establish a neutral, private and easily accessible office for employee concern discussions.
- Ensure all employee concerns are handled discretely and with complete confidentiality when requested by the concerned individual (CI) and allowed by law.
- Track each employee concern individually until closure is achieved.
- Report status of employee concerns to senior management monthly.

7.3 Implementation of Four Supplemental High-Reliability Principles

A high-reliability organization (HRO) repeatedly accomplishes its mission safely, avoiding catastrophic events, despite significant hazards, dynamic tasks, time constraints, and complex

technologies. ORP is a high-reliability organization which requires an effective ISM to be successful. This includes an essential set of behaviors and habits with each other and towards work. These habits include:

- A preoccupation with safety.
- A high respect and regard for expertise.
- Sensitivity to operations.
- Commitment to resilience.
- Reluctance to simplify interpretation (Weick and Sutcliffe)

DOE has established four supplemental high-reliability principles, in addition to the ISM seven, to help develop the appropriate environment for ISMS. The four supplemental principles are as follows:

1. **Highly-Reliable Operational Performance:** Where ORP achieves sustained, high-levels of operational performance in safety, productivity, quality and environmental. High-reliability is achieved through open communication, deference to expertise, and a systematic approach to eliminating accidents and errors. Attributes of this principle include:
 - Managers are in close contact with the front-line.
 - Operational anomalies receive prompt attention and evaluation.
 - Candid dialogue, debate and a healthy skepticism exists and is encouraged. The messenger is not killed for bringing forth an issue.
2. **Individual Attitude and Responsibility:** Each ORP worker accepts personal responsibility and accountability for safe operations. Individuals demonstrate a questioning attitude by challenging assumptions, and finding the facts for themselves. Attributes of this principle include:
 - Individuals understand safety expectations and demonstrate responsibility for safety on each job.
 - Workers are actively involved in planning work and identifying potential hazards.
 - People promptly report errors, accidents and incidents without fear of retaliation.
3. **Performance Assurance:** Competent and independent oversight is an essential source of feedback to management. The feedback verifies expectations are being met and identifies opportunities for improvement. Attributes of this principle include:
 - Performance assurance programs are guided by plans which ensure a base level of relevant areas are reviewed.
 - Efficient redundancy in monitoring is valued.
 - Organizational feedback is actively sought and valued.

4. **Organizational Performance Improvement:** ORP demonstration of excellence in performance monitoring, problem analysis, and solution implementation. The organization encourages continuous learning. Attributes of this principle include:
 - Performance is monitored through a variety of indicators, including, management walk-arounds, performance trends, benchmarking and self-assessments.
 - People are comfortable raising and discussing questions or concerns. Management is not defensive when issues are raised.
 - Expertise in causal analysis is applied effectively to events.

8.0 Integration of EMS and QA into ISM

DOE Order 450.1 establishes EMS requirements for federal and contractor components. Contractor components are implemented through S/RIDS. Federal EMS requirements are implemented through integration into the federal ISMS Description. The correlation of the EMS and QA components to the ISM principles and core functions is shown in Table 3 below.

Environmental Management System

ORP protects and is a good steward of the environment, both on and off the Hanford Site. To implement sound stewardship practices which protect the air, water and land, ORP enforces the responsibilities and requirements of DOE O 450.1 for itself and its contractors. The Environmental Management System (EMS) is implemented to ensure environmental protection actions and measures are integrated into all work planning and performance. This is accomplished effectively by integrating EMS requirements into ISMS.

EMS is part of ORP's overall ISMS approach for achieving workplace safety and environmental protection. EMS provides a systematic management process for identifying and addressing environmental consequences of an ORP action. Processes within the EMS encompass a continuous cycle of planning, implementing, and evaluating to ensure the safety of the workers and public, and protection of the environment.

Programmatic components of EMS include:

- Permit Management.
- Pollution Prevention.
- Environmental Compliance.
- Environmental Oversight.
- NEPA Analysis.
- Radiation Protection and Radioactive Waste Management.
- Watershed Management.
- Cultural Resource Management.

Through the implementation of EMS, ORP ensures environmental management considerations are fundamental and integral components of the organization, ISMS and contractor management. The integration of EMS into ISMS also ensures that the requirements are met from DOE O 450.1, *Environmental Protection Program*. ORP reviews and evaluates prime contractor implementation

of EMS into their ISMS as a component of the federal assessment of contractor programs. DOE O 450.1 Attachment 2 sets forth the contractor requirements document (CRD) which apply to contractors responsible for management and operation of the Department-owned facilities. This includes the tank farms contractor.

A Memorandum of Agreement (MOA) between ORP and RL describes the responsibilities for environmental policy and strategic development, regulatory permitting actions, regulatory negotiation and regulatory enforcement actions. The MOA ensures consistency and coordination between ORP and RL on all environmental issues.

ISMS Guiding Principles	Supplemental High-Reliability Principles	ISM Core Functions	Quality Assurance Criterion	EMS Objectives
1. Line Management Responsibility	1. Highly-Reliable Operational Performance	All Five Core Functions	Quality Assurance Program	Policy, Planning, Implementation and Operation
2. Clear Roles and Responsibilities	2. Individual Attitude and Responsibility		Personnel Training and Qualification	
3. Competence to perform Responsibilities				
4. Balanced Priorities	3. Performance Assurance	1. Define Scope of Work	<ul style="list-style-type: none">• Work Processes• Documents and Records• Design• Procurement	• Permitting
		2. Identify and Analyze Hazards		• Public health and environmental protection
5. Identification of Safety Standards 6. Tailor Hazard Controls to Work		3. Develop and Implement Hazard Controls		• Pollution Prevention
		4. Perform Work Within Controls		• Compliance
7. Operations Authorization	4. Organizational Performance Improvement	5. Feedback and Continuous Improvement	<ul style="list-style-type: none">• Quality Improvement• Inspection and Acceptance• Management Assessment• Independent Assessment	

Table 3. Correlation of EMS and QA to ISM

Quality Assurance

ORP is committed to quality of all mission results and the elimination of errors. ORP M 414.1, *Quality Assurance Program Description (QAPD)* is applicable to everyone in the organization. The QAPD describes the method by which Quality Assurance (QA) is implemented into ISMS and the overall work processes.

ORP is committed to achieving quality in accordance with the Quality Assurance Rule (10 CFR 830, Subpart A) and DOE O 414.1C, Quality Assurance, by having a comprehensive QA program in place. The QA program identifies those requirements and actions which are implemented to achieve this result.

ORP's QA program places accountability for quality on each person working on the River Protection Project. In addition, it emphasizes the creation of an environment for resolution of quality problems rapidly and an attitude of constant improvement. ORP has 10 criteria for quality assurance:

1. Establish an organizational structure, functional responsibilities, levels of authority, and interfaces for management, performance, and assessment of work. Establish management systems for planning work and resource allocation.
2. Train and qualify personnel to be capable of performing assigned work.
3. Establish and implement processes to detect and prevent quality problems. Identify the causes of problems and include prevention of recurrence as a part of corrective action planning.
4. Prepare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design. Specify, prepare, review, approve, and maintain records.
5. Perform work consistent with technical standards, administrative controls, and hazard controls adopted to meet regulatory or contract requirements using approved instructions and procedures.
6. Design items and processes using sound engineering/scientific principles and appropriate standards. Verify/validate work before approval and implementation of the design.
7. Procure items and services which meet established requirements and perform as specified. Evaluate and select prospective suppliers on the basis of specified criteria.
8. Inspect and test specified items, services, and processes using established acceptance and performance criteria.
9. Managers assess their management processes to identify and correct problems which hinder the organization from achieving its objectives.

10. Plan and conduct independent assessments to measure item and service quality and the adequacy of work performance, and to promote improvement.

Status of Integration

ORP is still working on the implementation of EMS to DOE O 450.1 requirements. Specific actions to improve the protection of cultural resources and site resources from wild fires are maturing. However, the implementing actions taken to date are working to strengthen the integration of the above system components as follows (Table 4):

Management System	Implementing Actions	Impact Project
ISMS	<ul style="list-style-type: none"> • ISM, EMS and QA SMEs integrated within the ESQ organization 	<ul style="list-style-type: none"> • Improved planning and ORP management accountability
EMS	<ul style="list-style-type: none"> • Development of Management Plan (in progress) • Implementation of Pollution Prevention performance measures 	<ul style="list-style-type: none"> • Improved permit planning, Pollution Prevention awareness and regulatory compliance
QA	<ul style="list-style-type: none"> • HQ approval of the 2005 ORP QAP 	<ul style="list-style-type: none"> • Improved contractor inspections and management assessments
Project Planning	<ul style="list-style-type: none"> • Internal, customized project management training 	<ul style="list-style-type: none"> • Enhanced work planning • Improved review of contractor baseline plans • Improved budget requests

Table 4. EMS, QA Integration into ISM.

Appendix A

Definition of Guiding Principles for Integrated Safety Management

The seven guiding principles are the fundamental policies guiding DOE and contractor actions. ORP's implementation of each guiding principle is discussed in Section 3.0.

- a. **Line Management Responsibility for Safety.** An effective safety management system must ensure that line management is directly responsible for the protection of the public, the workers, and the environment.
- b. **Clear Roles and Responsibilities.** An effective safety management system must ensure that clear and unambiguous lines of authority and responsibility for safety are established and maintained at all organizational levels within the DOE and its contractors.
- c. **Competence Commensurate with Responsibilities.** An effective safety management system must ensure that personnel possess the experience, knowledge, skill, and abilities necessary to discharge their responsibilities.
- d. **Balanced Priorities.** An effective safety management system requires that resources be appropriately allocated to address safety, programmatic, and operational considerations. Protecting the public, workers, and the environment shall be a priority when work activities are planned and performed.
- e. **Identification of Safety Standards and Requirements.** An effective safety management system requires that before work is performed, associated hazards are evaluated and safety standards and requirements are established. Safety standards and requirements should provide adequate assurance that if they are properly implemented, the public, workers, and environment will be protected from adverse consequences.
- f. **Hazard Controls Tailored to Work Being Performed.** An effective safety management system requires that administrative and engineering controls designed to prevent and mitigate hazards be tailored to the work being performed and the associated hazards.
- g. **Operations Authorization.** An effective safety management system requires that the conditions and requirements that must be satisfied for operations to begin and continue be clearly established and agreed on.

Definition of Core Functions

The five core safety management functions provide the structure for integrating safety management with any work activity that could potentially affect the public, the workers, or the environment. The functions are applied as a continuous cycle with the degree of rigor appropriate to address the type of work activity and hazards involved. ORP's implementation of the core functions is discussed in Section 7.0.

- a. **Define Scope of Work.** Missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated.
- b. **Analyze Hazards.** Hazards associated with work are identified, analyzed, and categorized.
- c. **Develop and Implement Hazard Controls.** Applicable standards and requirements are identified and agreed on, controls to prevent or mitigate hazards are identified, the safety envelope is established, and controls are implemented.
- d. **Perform Work Within Controls.** Readiness is confirmed and work is performed safely.
- e. **Provide Feedback and Continuous Improvement.** Feedback information on the adequacy of controls is gathered, opportunities for improving the definition and planning of work are identified and implemented, line and independent oversight is conducted, and, if necessary, regulatory and enforcement actions occur.

Appendix B – ORP Safety Performance Measures

Indices are established for each topical area based on historical performance and future expectations for improvement. ORP expects each organizational group to surpass the established index.

Management System	Performance Measures
Project Management System	<ul style="list-style-type: none"> • Work scope priorities are defined and communicated to contractors by July 31st of each year to guide annual work planning. • Corrective actions are reviewed monthly with the contractor for any cost or schedule variance with greater than a negative 10%. • ORP conducts a monthly all-employees meeting with emphasis on safety. • ORP Manager and direct report managers attend the DOE Nuclear Executive Leadership Training by September 30, 2005.
Assessment and Oversight Program	<ul style="list-style-type: none"> • The Assessment and Oversight Schedule is issued for the new fiscal year by September 15 annually. • ORP completes 90% or greater of annually planned assessments.
Management Walk-Through Program	<ul style="list-style-type: none"> • ORP managers spend at least 100 hours individually in the field each year.
ORP FRAM	<ul style="list-style-type: none"> • FRAM is updated on schedule by May 31st of each year and submitted to EM-1.
Human Resource Management/Employee Training and Development	<ul style="list-style-type: none"> • IDPs, EJTA's and Position Descriptions are reviewed and revised by October 31st. • 90% or greater of planned employee training is completed on schedule.
Workforce Management	<ul style="list-style-type: none"> • ORP Succession Plan is revised by September 30th each fiscal year.
Federal Technical Capability Program	<ul style="list-style-type: none"> • ORP Manager assigns a representative by August 31, 2005, to support upgrade of the DOE-wide STSM training course for qualification. Completion of the course update is due by March 2006. • The ORP TQP is accredited to the INPO standards by October 2006.
Minority/Differing Professional Opinion	<ul style="list-style-type: none"> • The ORP Minority/Differing Professional Opinion procedure is in place by September 30, 2005, and executed.
Project Controls and Baseline Management	<ul style="list-style-type: none"> • ORP dispositions Level 0 and 1 contractor change requests within 30 days of receipt.
Performance and Recognition Program	<ul style="list-style-type: none"> • Employees sign Performance Plans by October 31 each fiscal year. • Employee Appraisals completed by October 31 of the following year after Performance Plans. • Management recognizes individual special performance through awards (quantify).

ORP Performance Measures (continued)

Management System	Performance Measures
Acquisition Management	<ul style="list-style-type: none"> • 40% of contracts are awarded to small business. • Contract equitable adjustments dispositioned within 60 days.
Asset Management	<ul style="list-style-type: none"> • Less than 5% of assets assigned to federal employees are lost, damaged or stolen each fiscal year.
Safety Basis and Authorization Basis Management	<ul style="list-style-type: none"> • WTP contractor ABARs are processed and closed within 30 days. • TF DSA changes are processed and closed within 30 days.
ISMS Annual Declaration Process	<ul style="list-style-type: none"> • The ORP ISMS Annual Declaration Readiness Report is issued by October 31st of each year. • ISMS corrective actions are completed and closed within 30 days of assignment. • The TF EMS is incorporated and ORP approved by December 31, 2005.
Employee Concern Program	<ul style="list-style-type: none"> • Employee concerns are investigated and dispositioned within 30 days from receipt of formal concern. • A 5% reduction in formal employee concerns is realized each preceding fiscal year.
Security	<ul style="list-style-type: none"> • Zero security infractions for ORP federal staff in a fiscal year.
Safety and Health	<ul style="list-style-type: none"> • Zero ORP federal staff recordable accidents and injuries in a fiscal year.

Appendix C - References

1. [DOE O 320.1 C1, *Acquiring and Positioning Human Resources.*](#)
2. [DOE O 360.1B, *Federal Employee Training.*](#)
3. [DOE M 411.1-1C, *Safety Management and Functions, Responsibilities, and Authorities Manual.*](#)
4. [DOE O 414.1C, *Quality Assurance.*](#)
5. [DOE O 420.1A, *Facility Safety.*](#)
6. [DOE O 425.1C, *Startup and Restart of Nuclear Facilities.*](#)
7. [DOE P 226.1, *DOE Oversight Policy.*](#)
8. [DOE O 430.1B, *Real Property Asset Management.*](#)
9. [DOE O 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees.*](#)
10. [DOE O 450.1, Change 1, *Environmental Protection Program.*](#)
11. [DOE P 450.4, *Safety Management System Policy.*](#)
12. [DOE P 450.5, *Line Environment, Safety, and Health Oversight.*](#)
13. [Defense Nuclear Facilities Safety Board \(DNFSB\) 95-2 to the Secretary of Energy, dated October 11, 1995.](#)
14. ORP M 220.1, Revision 3, *Integrated Assessment Program*, Revision.
15. ORP M 411.1-1, Revision 5, *Safety Management Functions, Responsibilities, and Authorities Manual for the U.S. Department of Energy, Office of River Protection.*
16. ORP M 413.3-1, *Project Reviews and Baseline Change Control.*
17. ORP M 414.1, Revision 1, *Quality Assurance Program Description.*
18. ORP M 420.1-1, *Fire Protection Program.*
19. ORP M 420.2c, *Facility Representative Program.*
20. ORP PD 420.3, *Safety Basis Management.*
21. ORP M 425.1, *Startup and Restart of Tank Farm Contractor Nuclear Facilities.*

22. Bechtel National, Inc., Safety Requirements Document, Volume II, 24590-WTP-SRD-ESH-01-001-02.
23. BNI Contract De-AC27-01R6V14136.
24. DOE/RL-96-0003, DOE Regulatory Process for Radiological, Nuclear and Process Safety Regulation of the RPP Waste Treatment Plant Contractor.
25. DOE/RL-96-0004, Process for Establishing a Set of Radiological, Nuclear and Process Safety Standards and Requirements for the RPP Waste Treatment Plant Contractor.
26. DOE/RL-96-0005, Concept of the DOE Regulatory Process for Radiological, Nuclear and Process Safety Regulation of the RPP Waste Treatment Plant Contractor.
27. DOE/RL-96-0006, Top-Level Radiological, Nuclear and Process Safety Standards and Principles for the RPP Waste Treatment Plant Contractor.
28. DOE/RL 97-52, *Basic Planning and Work Performance of Hanford Site Environmental Management Activities*.
29. DOE/RL-97-72, *Determination of Readiness to Implement Tank Waste Remediation System Basis for Interim Operations*.
30. HNF-SD-MP-SRID-001, CH2M HILL S/RID.
31. RL/REG-97-13, Regulatory Unit Position on Contractor-Initiated Changes to the Authorization Basis.
32. RL/REG-98-05, Inspection Program Description for the Regulatory Oversight for the RPP-WTP Contractor.
33. WTP Procedure 24590-WTP-GAB-00103.
34. DEAR 970.5204-2 (7), DOE Management and Operating Contracts.